
Final

**Environmental Assessment for
Conversion of the Existing Aero Club
Runway to Emergency Helipad for
David Grant Medical Center
Travis Air Force Base,
Fairfield, California**

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Submitted to
**U. S. Air Force Center for Engineering and the
Environment
Travis Air Force Base, California**

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CH2MHILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833

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FINAL FINDING OF NO SIGNIFICANT IMPACT
ENVIRONMENTAL ASSESSMENT
FOR CONVERSION OF THE EXISTING AERO CLUB RUNWAY TO EMERGENCY
HELIPAD FOR DAVID GRANT MEDICAL CENTER
AT TRAVIS AIR FORCE BASE, CALIFORNIA

INTRODUCTION

U.S. Air Force (Air Force) decisions regarding proposed actions must consider potential environmental impacts in accordance with the National Environmental Policy Act of 1969 (NEPA), 42 United States Code Sections 4321–4347; the Council on Environmental Quality (CEQ) regulations to implement NEPA, 40 Code of Federal Regulations (CFR) Parts 1500-1508; and the Air Force *Environmental Impact Analysis Process* (EIAP), 32 CFR 989. An environmental assessment (EA) has been prepared for the Proposed Action in accordance with NEPA, the CEQ and EIAP regulations and is incorporated by reference into these findings. This Finding of No Significant Impact (FONSI) and the attached EA have been prepared after an analysis of the affected environment and anticipated environmental consequences of the Proposed Action.

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to provide a new emergency helipad for use by the David Grant Medical Center (DGMCC) at Travis Air Force Base (AFB). The Proposed Action is needed to provide a permanent helipad location that is compliant with current navigational and facilities standards.

DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action includes the construction of an emergency helipad on the former Aero Club runway on Travis AFB. The standards and criteria applied to establish the action alternative include the underlying purpose and need to comply with the following:

- Federal Aviation Administration standards defined in the *Heliport Design Advisory Circular Number 150/5390-2B* (FAA, 2004)
- U.S. Air Force directives for nighttime medevac operations specified in Unified Facilities Criteria 3-260-01 and 3-353-01
- Air Force Manual 32-1076
- Engineering Technical Letter 04-02
- Environmental requirements applicable at Travis AFB

Accordingly, the Air Force proposes the following activities within a 3.6-acre action area:

- Construction of a 0.07-acre landing pad
- Installation of 12 omni-directional landing direction lights and 2 helipad perimeter lights
- Replace and upgrade the electrical system

NO ACTION ALTERNATIVE

Under the No Action Alternative, construction of the emergency helipad would not occur, and the existing temporary emergency helipad at the parking lot of the former Aero Club would continue to be used. The buildings and runway at the former Aero Club facility are currently not in use.

Lighting of the temporary emergency helipad at night and during foggy conditions is accomplished by directing vehicle headlights at the helipad to illuminate pavement markings for helicopter landing and takeoff. Currently, approximately 10 medevac operations occur monthly. Medevac service is provided

by various contractors that serve DGMC. DGMC coordinates with the medevac contractors prior to operations at the temporary emergency helipad. DGMC cannot provide helicopter medevac services when visibility is low and, consequently, can neither transport patients to critically needed specialty care nor accept patients who need DGMC services.

Under the No Action Alternative, helipad operations would continue to be a safety concern because of insufficient lighting at the temporary emergency helipad during nighttime and foggy conditions. Travis AFB would continue to operate a temporary emergency helipad that would not comply with FAA and Air Force requirements for helipad lighting and design.

SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED ACTION

On the basis of the analyses in the environmental assessment (EA), which is herein incorporated by reference, I determine that no significant adverse effects are expected on any resource area as a result of the conversion of the existing Aero Club runway to an emergency helipad, as described in the action alternative. The Proposed Action would result in less than significant impacts or no effects to air quality, noise, hazardous materials, hazardous waste, stored fuels, water resources, biological resources, land use, cultural resources, transportation systems, airspace/airfield operations, safety and occupational health, environmental management, and environmental justice. During construction, the Proposed Action would provide short-term, socioeconomic benefits through the generation of construction jobs.

The EA indicates that the construction of an emergency helipad would not result in or contribute to significant negative cumulative or indirect impacts to resources of the region if the prescribed mitigation measures are implemented.

BEST MANAGEMENT PRACTICES AND MITIGATION

The Air Force will implement best management practices to protect cultural resources, water quality, biological resources, worker health, and to manage hazardous materials and waste. An approved dig permit (60 AMW Form 55) will be obtained prior to construction. Mitigation is not required.

PUBLIC REVIEW AND INTERAGENCY COORDINATION

In accordance with Air Force policy, a notice of availability (NOA) for the draft EA and draft FONSI was published on June 18, 2010, in local newspapers. The NOA provided for a 30-day public comment period for documents placed in local libraries and made available to all interested parties on the Travis AFB public Web site. Concurrent interagency and intergovernmental coordination for environmental planning process is performed.

FINDING OF NO SIGNIFICANT IMPACT

After reviewing the EA prepared in accordance with the requirements of NEPA, CEQ, and EIAP regulations, I have determined that the Proposed Action would not have a significant impact on the quality of the human or natural environment; therefore, an environmental impact statement is not necessary. This decision has been made after taking into account all submitted information and considering the No Action Alternative and the action alternative that would meet the project requirements.


JAMES A. JACOBSON, Colonel, USAF
Vice Commander, 60th Air Mobility Wing

16 Sep 10
Date

Attachment: *Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center Travis Air Force Base, Fairfield, California*

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Acronyms and Abbreviations

µg/m ³	micrograms per cubic meter
°F	degrees Fahrenheit
60 CES/CEA	60th Civil Engineering Squadron/ Asset Management Flight
60 CES/CEAN	60th Civil Engineering Squadron/Restoration Section of Asset Management Flight
AFB	Air Force Base
Air Force	U.S. Air Force
AMC	Air Mobility Command
AST	aboveground storage tank
BAAQMD	Bay Area Air Quality Management District
Base	Travis Air Force Base
Base RPM	Base Restoration Program Manager
Basin	San Francisco Bay Area Air Basin
BMP	best management practice
C&D	construction and demolition
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CEQ	President's Council on Environmental Quality
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CTS	California tiger salamander
CWA	Clean Water Act
dB	decibel(s)
DGMC	David Grant Medical Center
EA	environmental assessment

EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
FAA	Federal Aviation Administration
ft ²	square feet
General Plan	<i>General Plan for Travis Air Force Base, California</i>
helipad	helicopter landing pad
LANL	Los Alamos National Laboratory
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO ₂	nitrogen dioxide
NO _x	nitrogen oxide
NRMU	Natural Resource Management Unit
P2MAP	<i>Travis Air Force Base Pollution Prevention Management Action Plan</i>
PM ₁₀	particulate matter less than 10 micrometers
PM _{2.5}	particulate matter less than 2.5 micrometers
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
SIP	state implementation plan
SO ₂	sulfur dioxide
tpy	tons per year
UFC	Unified Facilities Criteria
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VOC	volatile organic compound
Water Board	Central Valley Regional Water Quality Control Board

SECTION 1

Purpose of and Need for the Proposed Action

1.1 Introduction

The U.S. Air Force (Air Force) Air Mobility Command (AMC) at Travis Air Force Base (AFB or Base) in Fairfield, California, proposes to construct an emergency helicopter landing pad (helipad) for use by David Grant Medical Center (DGMC) at the site of the former Aero Club. The proposed helipad would be constructed on a portion of the existing Aero Club runway and would comply with Air Force and Federal Aviation Administration (FAA) regulations for emergency helipad lighting and design.

Travis AFB, with the support of AMC and the Air Force Center for Engineering and the Environment, has prepared this draft environmental assessment (EA) in accordance with National Environmental Policy Act (NEPA) implementing Title 40 of the Code of Federal Regulations (CFR), Parts 1500 through 1508; Air Force regulations (32 CFR 989); and Department of Defense directives. This EA evaluates the potential environmental impacts that would result from implementation of the Proposed Action.

1.2 Need for the Action

Implementation of the Proposed Action would meet the Base's need to provide a new emergency helipad for DGMC. The temporary emergency helipad does not meet FAA and Air Force design requirements. Helipad design must meet FAA standards in the Heliport Design Advisory Circular Number 150/5390-2B (FAA, 2004) and Air Force directives for emergency medevac missions during night operations specified in Unified Facilities Criteria (UFC) 3-260-01 and 3-353-01, Air Force Manual 32-1076, and Engineering Technical Letter 04-02.

Current emergency helipad operations are a safety concern, especially at night, because visibility can be severely limited as a result of insufficient lighting. During winter, visibility is further reduced when fog is in the area. Lighting of the helipad at night and in foggy conditions currently consists of directing vehicle headlights at the helipad to illuminate pavement markings for helicopter landing and takeoff. DGMC cannot provide helicopter medevac services when visibility is low and, consequently, can neither transport patients to critically needed specialty care nor accept patients who need DGMC services. With coordination by the tower, the alternate landing facility is the Base flightline.

1.3 Objectives of the Action

The objective of any of the project alternatives is to provide a safe and efficient facility for helipad operations for DGMC. The alternatives should meet or exceed environmental requirements for construction and comply with Air Force and FAA requirements for helipad lighting and design.

1.4 Location of Proposed Action

Travis AFB is located in the city of Fairfield, Solano County and includes approximately 5,128 acres (see Figure 1-1 [figures appear at the end of the section where they are first referenced]). The Base is located off Interstate 80, approximately midway between Sacramento and San Francisco and 7 miles northeast of central Fairfield.

The Proposed Action is located in the west portion of the Base, with the Base boundary to the north and west, open space and DGMC to the east, and the Aero Club buildings and parking lot to the south. The former Aero Club is located onbase, approximately 1,000 feet from DGMC (see Figure 1-2). Travis AFB used the Aero Club from 1954 through 2006. Aero Club facilities include several buildings, a large parking lot for vehicles and small airplanes, and a runway. Aero Club operations were moved offbase in 2006.

1.5 Scope of the Environmental Assessment

This EA documents and analyzes the potential environmental and socioeconomic effects associated with the Proposed Action relative to the No Action condition.

1.6 Decision(s) that Must Be Made

Air Mobility Command is responsible for selecting an alternative for construction of an emergency helipad at Travis AFB. A decision to take no action (Alternative 1) would result in Travis AFB not constructing an emergency helipad. The temporary helipad would continue to be used by DGMC for emergency operations. A decision to take action (Alternative 2) would result in Travis AFB proceeding with the construction of the proposed emergency helipad.

1.7 Applicable Regulatory Requirements and Required Coordination

This EA has been prepared in accordance with the President's Council on Environmental Quality regulations (40 CFR 1500–1508), as they implement the requirements of NEPA, as amended by 42 United States Code (USC) 4321 et seq., and Air Force regulations (i.e., *The Environmental Impact Analysis Process* [32 CFR 989]). The Air Force regulations specify the procedural requirements for implementing NEPA and preparing an EA and directs Air Force officials to consider environmental consequences as part of the planning and decision making process.

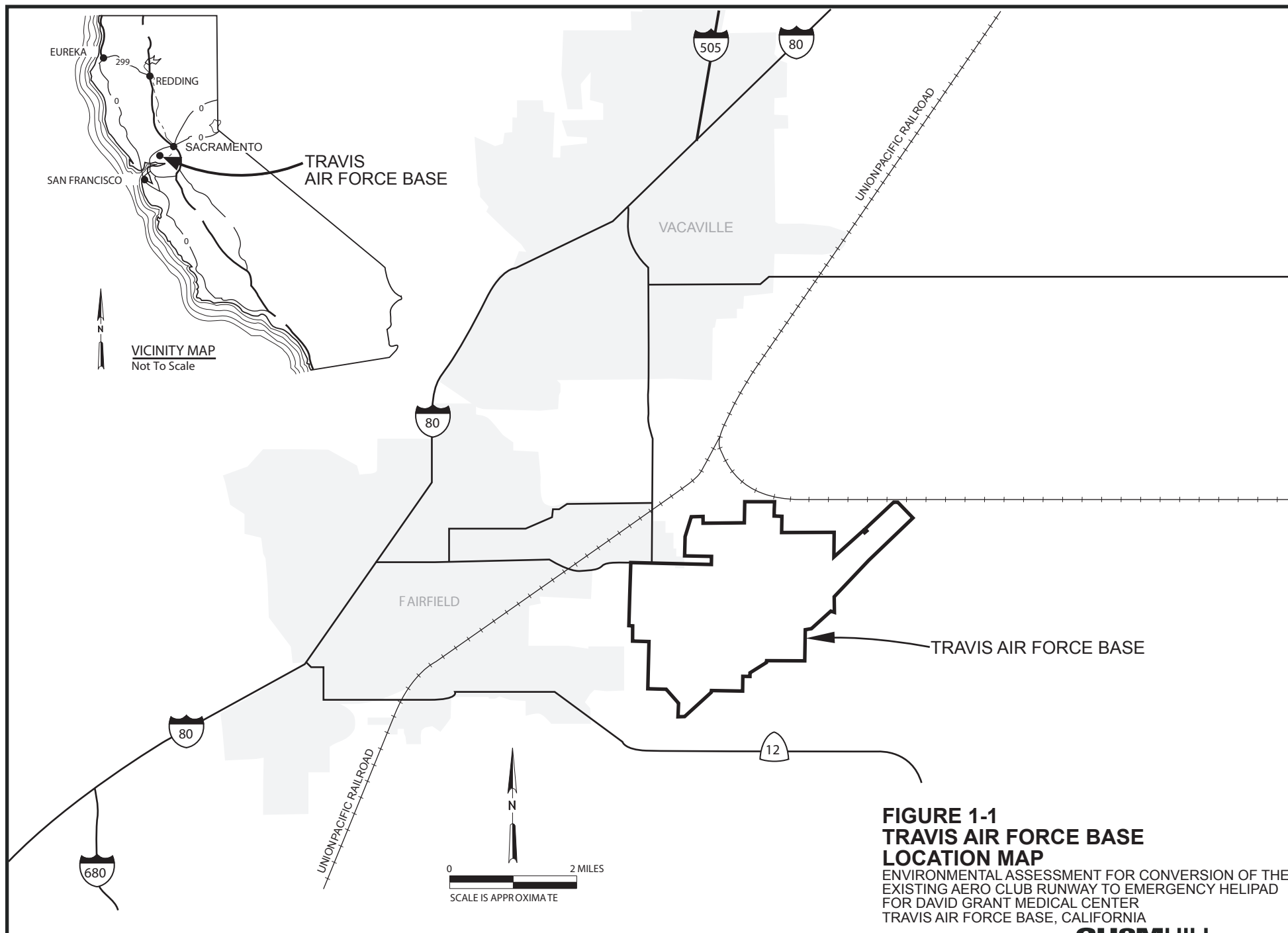
Other environmental regulatory requirements relevant to the Proposed Action are identified in this EA. Regulatory requirements under the following programs, among others, are assessed:

- Noise Control Act of 1972
- Clean Air Act
- Clean Water Act
- National Historic Preservation Act

- Archaeological Resources Protection Act
- Endangered Species Act of 1973
- Resource Conservation and Recovery Act
- Comprehensive Environmental Response, Compensation, and Liability Act
- Toxic Substances Control Act of 1970
- Occupational Safety and Health Act

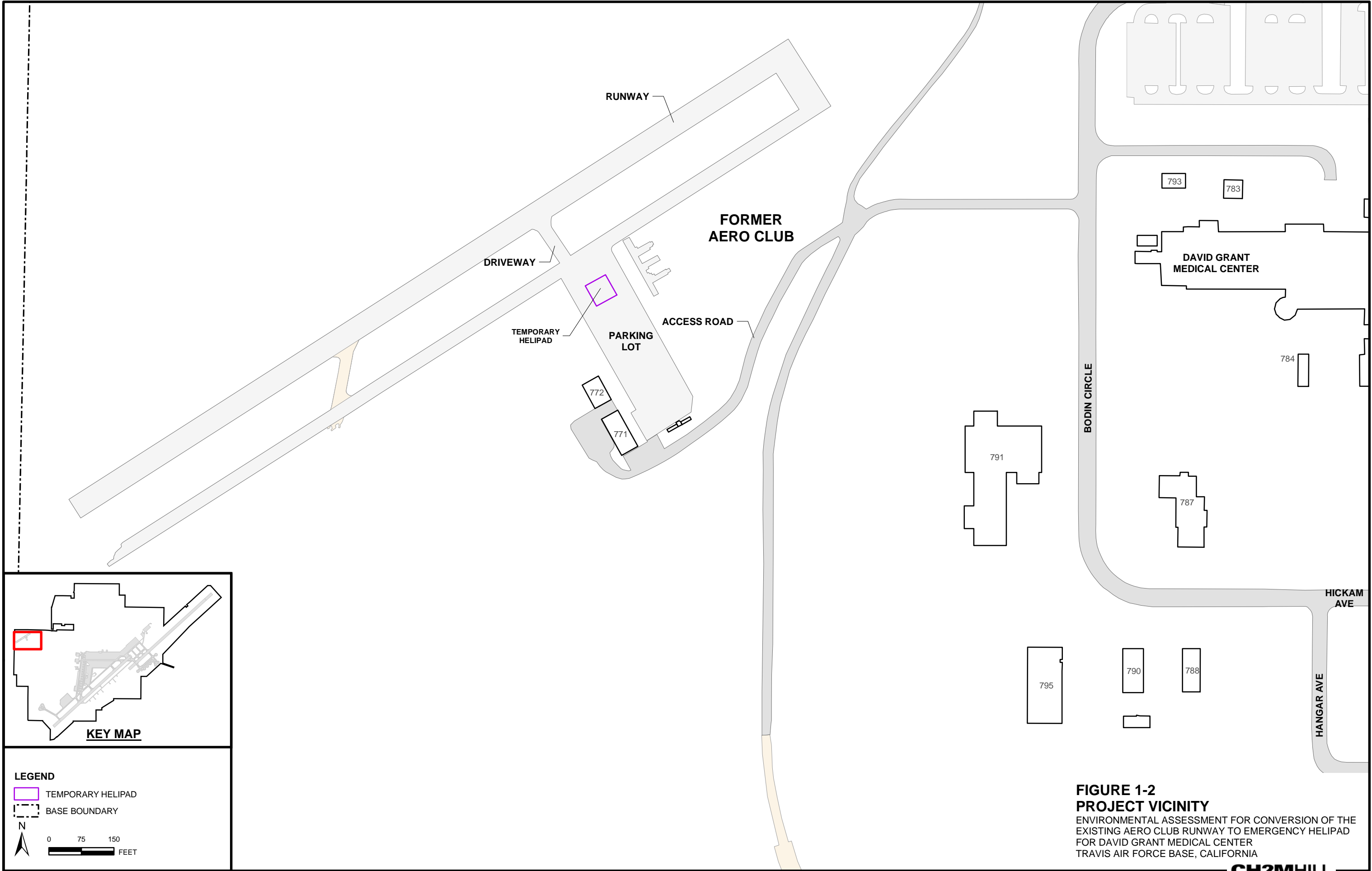
Requirements also include compliance with Executive Order (EO) 11988 (*Floodplain Management*), EO 11990 (*Protection of Wetlands*), EO 12898 (*Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*), EO 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*), and EO 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*).

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**FIGURE 1-1
TRAVIS AIR FORCE BASE
LOCATION MAP**

ENVIRONMENTAL ASSESSMENT FOR CONVERSION OF THE
EXISTING AERO CLUB RUNWAY TO EMERGENCY HELIPAD
FOR DAVID GRANT MEDICAL CENTER
TRAVIS AIR FORCE BASE, CALIFORNIA



SECTION 2

Description of the Alternatives, Including the Proposed Action

2.1 Introduction

This section presents the criteria for selecting the alternatives and describes the alternative to be carried forward for detailed analysis.

2.2 Selection Criteria for Alternatives

Reasonable alternatives for constructing an emergency helipad at Travis AFB should accomplish the following in a cost-efficient and cost-effective manner, with minimal impact to human health and the environment:

- Be in proximity to DGMC
- Comply with FAA and Air Force airspace criteria and helipad lighting and design
- Provide direct and unimpeded access for emergency vehicles to the helipad for transport of patients to and from DGMC
- Use environmentally compliant practices to construct the helipad

2.3 Description of the Proposed Alternatives

2.3.1 Alternative 1 – No Action

Under the No Action Alternative, construction of the emergency helipad would not occur, and the existing temporary emergency helipad at the parking lot of the former Aero Club would continue to be used. The buildings and runway at the former Aero Club facility on Travis AFB are currently not in use.

Lighting of the temporary emergency helipad at night and in foggy conditions consists of directing vehicle headlights at the helipad to illuminate pavement markings for helicopter landing and takeoff. Currently, approximately 10 medevac operations occur monthly. Medevac service is provided by various contractors that serve DGMC. DGMC coordinates with the medevac contractors prior to operations at the temporary emergency helipad. DGMC cannot provide helicopter medevac services when visibility is low and, consequently, can neither transport patients to critically needed specialty care nor accept patients who need DGMC services.

Under the No Action Alternative, helipad operations would continue to be a safety concern because insufficient lighting of the temporary emergency helipad at night and during foggy conditions would continue. Travis AFB would continue to operate a temporary emergency

helipad that would not comply with FAA and Air Force requirements for lighting and design.

2.3.2 Alternative 2 – Proposed Action

Alternative 2 is the Proposed Action. The Air Force proposes to construct an emergency helipad on the former Aero Club runway. Figure 2-1 shows the Proposed Action Area and the components of the proposed emergency helipad.

Construction of the emergency helipad would include demolishing a portion of the runway, constructing a cement pad, installing a lighting system, and providing pavement markings. Use of the temporary emergency helipad at the parking lot would be discontinued after construction.

The total construction footprint under the Proposed Action would be up to 3.6 acres. The total construction footprint includes existing paved areas that would be used for staging of equipment and unpaved areas that would be used for vehicle access during demolition and construction activities. The Proposed Action would require approximately 120 days (4 months) to construct.

The discussion of construction and operation of the helipad in the following subsections is based on information from Air Force Forms 813 and 1391 (see Appendices A and B, respectively).

2.3.2.1 Construction of a Landing Pad

Approximately 2,500 square feet (ft²) of the former runway pavement would be demolished and replaced with a landing pad. The final dimension of the helipad would be approximately 54 feet by 54 feet (2,916 ft²). The helipad would be constructed of portland cement concrete. In addition, concrete pads, 2 feet long by 2 feet wide by 3 feet deep (approximately 12 cubic feet), would be constructed as bases for each of two perimeter lights (see Section 2.3.2.3).

2.3.2.2 Helipad Markings

The helipad would be marked in accordance with specifications in FAA and Air Force regulations. Helipad markings would include a perimeter line (50 by 50 feet, square), and in the center, the standard symbol for a hospital helipad (a white cross with a red “H”). The markings of the temporary emergency helipad would be removed by sand blasting.

2.3.2.3 Lighting System

The helipad lighting system would consist of twelve landing direction lights and two omnidirectional perimeter lights. The perimeter lights would be placed 25 feet from the outer helipad markings, perpendicular to the existing runway, on undisturbed land (see Figure 2-1). Two arrays of landing direction lights (six lights in each array) would extend in opposite directions from the helipad, along the length of the existing runway. The maximum height of all lighting would be 18 inches from the ground. A control box would be constructed for manual operation of the helipad lighting system. The box would be installed on a concrete pad near the temporary helipad. The helipad lighting system was

designed in accordance with UFC 3-535-01, Figure 7-2 and Paragraph 7-2.3: Standards for Visual Flight Regulation Helipads.

Electricity to the lighting system would be routed from an aboveground electrical line located at the southern end of the former Aero Club. The line would extend below ground (beneath the existing parking lot and runway) to the helipad location.

2.3.2.4 Access and Staging Areas

Construction access to the site Proposed Action Area would be from the existing road leading to the former Aero Club (see Figure 1-2). Construction vehicles would require temporary access to unpaved areas along the runway for demolition of the runway and construction of the helipad and installation of the helipad lighting. Access of approximately 9,825 ft² (0.23 acre) of unpaved area adjacent to the runway would be required for construction activities.

Staging of equipment used during construction would occur on existing paved areas in the former Aero Club parking lot. Typical construction equipment would include dump trucks, backhoes, and truck concrete mixers.

2.3.2.5 Operations

The helipad would be used for emergency medevac operations to and from DGMC. The temporary emergency helipad would be left in place and no longer used after the new emergency helipad becomes operational.

Under the Proposed Action, DGMC personnel would operate the helipad lights manually, turning them on and off prior to helicopters arriving and departing. Vehicles from DGMC would access the helipad via the existing driveway leading from the former Aero Club parking lot to the runway. The runway is wide enough (50 feet wide) for vehicles to turnaround.

2.4 Alternatives Considered but Eliminated from Analysis

Travis AFB considered converting the temporary helipad to a permanent helipad. The temporary site does not provide adequate space for installation of a lighting system that complies with UFC criteria and standards for visual air navigation facilities (UFC 3-535-01). Because the site does not meet all of the selection criteria, it was removed from further consideration.

2.5 Description of Past and Reasonably Foreseeable Future Actions Relevant to Cumulative Impacts

This EA identifies actions that have been conducted in the past, actions that are ongoing or in the planning stages, and future actions related to the Proposed Action. Actions that have the potential to interact with the Proposed Action are discussed in Section 4.15.

2.6 Identification of Preferred Alternative

The Air Force's preferred alternative for the EA is the Proposed Action described in Section 2.3.2. The Proposed Action alternative is the only alternative that meets the selection criteria.

2.7 Comparison of the Environmental Impacts of Alternatives

Table 2-1 presents the potential environmental consequences of implementing Alternatives 1 and 2.

TABLE 2-1

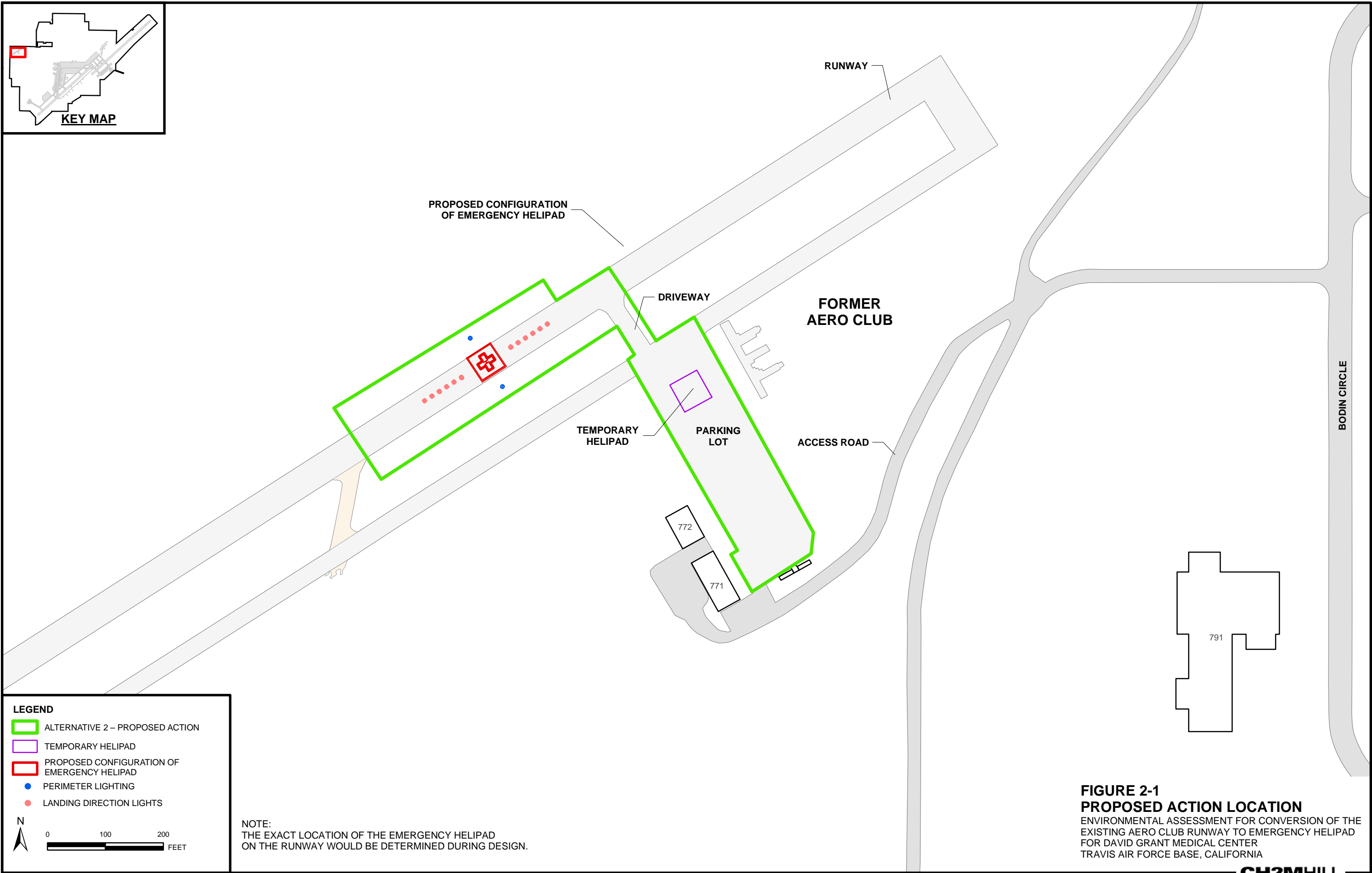
Summary of Potential Environmental and Socioeconomic Consequences

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

Resource	Alternative 1 No Action Consequences	Alternative 2 Proposed Action Consequences
Air Quality	No impact	Less than significant
Noise	No impact	Less than significant
Hazardous Materials, Wastes, ERP Sites, and Stored Fuels	No impact	Less than significant
Water Resources		
Groundwater	No impact	Less than significant
Surface Water	No impact	Less than significant
Floodplains	No impact	Less than significant
Biological		
Vegetation and Wildlife	No impact	Less than significant
Federal- and State-listed Threatened or Endangered Species	No impact	Less than significant
Wetlands	No impact	Less than significant
Socioeconomic	No impact	Short-term beneficial (construction) Less than significant (operation)
Cultural	No impact	Less than significant
Land Use	No impact	No impact
Transportation System	No impact	Less than significant
Airspace/Airfield Operations	No impact	Less than significant (construction) Beneficial (operation)
Safety and Occupational Health	No impact (construction) Negative impact (operation)	Minor short-term adverse (construction) Beneficial (operation)
Environmental Management		
Geology and Soils	No impact	No impact
Pollution Prevention	No impact	No impact
Environmental Justice	No impact	No impact
Indirect and Cumulative Impacts	No impact	Less than significant

Note:

ERP = Environmental Restoration Program



Affected Environment

3.1 Introduction

This section presents specific information about the environment at Travis AFB that could be adversely affected as a result of implementing the Proposed Action. Potential impacts resulting from the Proposed Action are described in detail in Section 4.

3.2 Air Quality

Travis AFB is located in central Solano County, which is at the eastern edge of the San Francisco Bay Area Air Basin (Basin). The Basin extends from Napa County in the north to Santa Clara County in the South. The Basin encompasses 5,340 square miles and 19 percent of California's population. The Basin is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD) pursuant to a mandate from the California Air Resources Board (CARB). Only the golf course at Travis AFB extends into a neighboring jurisdiction, the Yolo-Solano Air Pollution Control District.

The purpose of this section is to provide an overview of regional air quality. The information presented in this section includes a discussion of existing meteorological and topographical conditions, applicable federal and state regulations, regional air quality management programs, and the current air quality conditions.

3.2.1 Regional Climate

California has a Mediterranean climate, with wet winters and dry summers. Travis AFB is not located near the coast; however, it is located near the Carquinez Strait, a major break in the Coast Range that allows the ocean to moderate temperatures at Travis AFB. The Base usually experiences mild temperatures; the mean annual temperature is 60 degrees Fahrenheit (°F). The lowest temperatures occur in January, with a mean of 46°F. The highest temperatures occur in July and August, with a mean of 72°F. The monthly mean relative humidity typically ranges from 50 percent in June to 77 percent in January. The mean annual relative humidity is 60.5 percent. Precipitation is approximately 17 inches per year.

During the late summer and early fall months, Travis AFB is subject to marine air flowing from high pressure cells offshore toward low pressure in the Central Valley. Winds tend to flow from the west at 15 to 20 miles per hour and are typically strongest in the afternoon. The Base occasionally experiences easterly winds generated in the Central Valley. Winds from the Central Valley tend to have higher pollutant loads.

3.2.2 Current Air Quality Conditions

The Basin has been assessed for compliance with California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). Three air quality designations can be given to an area for a particular pollutant:

- **Nonattainment:** Applies when air quality standards have not been consistently achieved.
- **Attainment:** Applies when air quality standards have been achieved.
- **Unclassified:** Applies when there is not enough monitoring data to determine whether the area is in nonattainment or attainment.

According to CARB, the Basin is designated as nonattainment for state standards for ozone, particulate matter less than 10 micrometers (PM₁₀) (i.e., fugitive dust), and particulate matter less than 2.5 micrometers (PM_{2.5}) (CARB, 2010). Relevant ambient air quality standards and their respective attainment status are listed in Table 3-1. The Basin is designated as attainment for state standards for carbon monoxide, lead particulates, nitrogen oxide, sulfate particulates, and sulfur dioxide. For federal standards, the Basin is designated as nonattainment for 8-hour ozone and PM_{2.5}, and as maintenance for carbon monoxide. All other criteria pollutants are designated as attainment or are unclassified.

TABLE 3-1

Bay Area Air Quality Management District Attainment Status as of April 2010

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

Pollutant	Averaging Time	CAAQS		NAAQS	
		Standard	State Attainment Status	Standard	Federal Attainment Status
O ₃	8 hours	0.07 ppm	Nonattainment	0.075 ppm	Nonattainment (marginal)
	1 hour	0.09 ppm		–	
CO	8 hours	9.0 ppm	Attainment	9.0 ppm	Attainment/maintenance
	1 hour	20.0 ppm		35.0 ppm	
NO ₂	Annual	0.03 ppm	Attainment	0.053 ppm	Attainment/Unclassified
	1 hour	0.18 ppm		0.100 ppm	
SO ₂	Annual	–	Attainment	0.03 ppm	Attainment/Unclassified
	24 hours	0.04 ppm		0.14 ppm	
	3 hours	–		–	
	1 hour	0.25 ppm		–	
PM ₁₀	Annual	20 µg/m ³	Nonattainment	–	Attainment/Unclassified
	24 hours	50 µg/m ³		150 µg/m ³	
PM _{2.5}	Annual	12 µg/m ³	Nonattainment	15 µg/m ³	Nonattainment
	24 hours	–		35 µg/m ³	

Source: CARB, 2010, <http://www.arb.ca.gov/desig/adm/adm.htm>

Notes:

– = not applicable

µg/m³ = micrograms per cubic meter

CO = carbon monoxide

NO_x = nitrogen oxide

O₃ = ozone

ppm = parts per million

SO₂ = sulfur dioxide

Table 3-2 lists the number of days when pollutant concentration exceeded NAAQS or CAAQS in BAAQMD during the last 10 years for state and federal nonattainment and maintenance pollutants (ozone, carbon monoxide, PM₁₀, and PM_{2.5}). There are no exceedances of carbon monoxide concentrations for the 1-hour and 8-hour state and federal standards during 1999 to 2008.

TABLE 3-2

San Francisco Bay Area Air Basin Exceedances of the California and National Ambient Air Quality Standards, 1999–2008
Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

	Standard Exceeded	Period	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
O ₃	CAAQS	1 hour	20	12	15	16	19	7	9	18	4	9
	NAAQS	8 hours	9	4	7	7	7	0	1	12	1	12
	CAAQS	8 hours	-	-	-	-	-	-	9	22	9	20
CO	NAAQS	1 hour	0	0	0	0	0	0	0	0	0	0
	CAAQS	1 hour	0	0	0	0	0	0	0	0	0	0
	NAAQS	8 hours	0	0	0	0	0	0	0	0	0	0
	CAAQS	8 hours	0	0	0	0	0	0	0	0	0	0
PM ₁₀	NAAQS	24 hours	0	0	0	0	0	0	0	0	0	0
	CAAQS	24 hours	12	7	10	6	6	7	6	15	4	5
PM _{2.5}	NAAQS	24 hours	-	1	5	7	0	1	0	10	14	12

Source: Bay Area Air Pollution Summary – 2008, BAAQMD,
<http://www.baaqmd.gov/~media/Files/Communications%20and%20Outreach/Annual%20Bay%20Area%20Air%20Quality%20Summaries/pollsum08.ashx>

Note:

- = no data available

Ozone concentrations exceeded the NAAQS (8-hour) and CAAQS (1-hour and 8-hour) every year during 1999 to 2008 in BAAQMD. Exceedances are generally attributed to unique meteorological patterns combined with increases in emissions during the summer months. Urban vehicular emissions, industrial emissions, and high ambient temperatures in the Basin contribute to summer ozone generation and subsequent air standard violations.

The closest ozone monitoring station is located approximately 5 miles north of Travis AFB, at 2012 Ulatis Drive in Vacaville of Solano County. The Vacaville-Ulatis station started monitoring ozone concentrations in 2003. The 8-hour ozone concentrations range from 0.078 to 0.103 ppm, exceeding the CAAQS and NAAQS in all 6 years since the monitoring started.

Particulate matter is generated within the project area by combustion sources and wind erosion during dry conditions. PM₁₀ levels are elevated during the winter because of stable conditions and low mixing heights, and because of wood smoke; vehicle exhaust; and dry, windy conditions. The closest PM₁₀ monitoring station is at 650 Merchant Street in Vacaville; the 24-hour PM₁₀ concentrations range from 35 to 82 µg/m³, exceeding the CAAQS in 5 of the 10 years since 1999. The 24-hour PM₁₀ NAAQS has not been exceeded.

PM_{2.5} concentrations are monitored at 304 Tuolumne Street in Vallejo. The maximum 24-hour PM_{2.5} concentrations exceeded NAAQS in 9 of the 10 years during 1999 to 2008, ranging from 30.8 ppm to 90.1 ppm. The 98th percentile PM_{2.5} concentration exceeded the NAAQS in 8 of 10 years.

3.3 Noise

The fundamental measure of sound levels is expressed in dB using a logarithmic scale. Noise is generally defined as sound that is undesirable for the following reasons:

- It is intense enough to damage hearing.
- It interferes with speech communication and sleep.
- It is annoying.

The Air Force typically uses the Air Installation Compatible Use Zone guidelines to promote compatible land use development. Noise is one consideration to be addressed under those guidelines. The descriptor of noise typically used in California is the Community Noise Equivalent Level (CNEL). The CNEL is the average sound energy level for a 24-hour day determined after the addition of a 5-decibel (dB) penalty to noise generated between 7:00 and 10:00 p.m. and a 10-dB penalty to noise events occurring at night between 10:00 p.m. and 7:00 a.m. The CNEL is calculated by using the sound energy generated by individual noise events, the number of events occurring during a 24-hour period, and the time when the events occur.

Helicopters arrive and depart from the temporary emergency helipad at a frequency of approximately 10 medevac operations each month. The maximum noise levels produced by various types of medevac helicopters, such as the Bell 407 helicopter, are approximately 100 dB during take-off and landing operations. Existing noise levels resulting from operation of the temporary helipad are intermittent and localized to the helipad area. The closest offbase sensitive receptors (e.g., churches, schools, and parks) are located approximately 0.75 mile west of the Proposed Action Area.

3.4 Hazardous Materials, Wastes, Environmental Restoration Program Sites, and Stored Fuels

This section provides a description of the hazardous materials and hazardous waste, solid wastes, ERP sites, and stored fuels at Travis AFB.

3.4.1 Hazardous Materials and Hazardous Waste

Activities conducted at Travis AFB generate more than 1,000 kg of hazardous waste in a calendar month, making it a large quantity generator under the federal Resource Conservation and Recovery Act (RCRA); therefore, Travis AFB is operated in accordance with U.S. Environmental Protection Agency (EPA) and state of California regulations pertaining to large quantity generators, and is subject to state regulations that implement RCRA requirements in California. (Travis AFB, 2006)

Activities that use most of the hazardous materials include maintenance of aircraft, transportation, equipment, and facilities. These activities contribute approximately 95 percent of

the total volume of hazardous waste generated at the Base, including flammable solvents, contaminated fuels and lubricants, stripping chemicals, waste oil, waste paint, absorbent materials, chemicals stored beyond their expiration date, and asbestos (Travis AFB, 2006). Hazardous materials are ordered, stored, and used in accordance with AFI 32-7086, AMC Supplement 1.

The Base maintains and implements a hazardous waste management plan to comply with RCRA, state, and Air Force regulations. The hazardous waste management plan establishes the procedures, training requirements, inspections, and record management processes for hazardous waste (Travis AFB, 1999). One facility, Building 1365, is permitted for long-term storage of hazardous waste. Building 1365 is managed by the 60th Civil Engineering Squadron/Asset Management Flight (60 CES/CEA) and operated by contractors (Travis AFB, 2006).

3.4.2 Solid Waste

Nonhazardous solid waste generated at Travis AFB during Fiscal Year 2009 totaled 24.5 tons per day (8,957 tons per year [tpy]), including both recycled waste and waste sent to a disposal facility. The amount of diverted/recycled waste (including green waste, manure, recycled and reused materials) averaged 10 tons per day (3,699 tpy). The amount of nonhazardous/solid waste sent to the disposal facility averaged 14 tons per day (5,258 tpy). (Travis AFB, 2009)

Travis AFB personnel recycle an average of 1.2 tons per month of aluminum, glass, and plastics at the Solano Recyclables Buy-Back Center facility located offbase, outside the main gate.

Construction and demolition (C&D) debris disposal is cyclic by nature; however, much of the C&D debris is recycled, reused, or otherwise diverted from landfills. By weight, concrete composes the largest percentage of C&D debris generated by most projects. In Fiscal Year 2009, 44,491 tons of C&D debris, such as concrete, wood, and metal were recycled. (Travis AFB, 2009)

Nonhazardous solid wastes and refuse, excluding scrap metal and electronic waste, at Travis AFB are collected and disposed of by Republic Service Garbage Company. An onbase facility, the Defense Reutilization Marketing Office, recycles all scrap metal. The Potrero Hill Landfill is used for solid waste disposal. A Basewide recycling program is administered by the 60 CES/CEA Recycling Program Manager. The program includes education, briefings, computer-based training, and teaching tools available to all squadrons. All solid waste is disposed of in accordance with the *Travis Air Force Base Integrated Solid Waste Management Plan* (Travis AFB, 2004a).

3.4.3 Environmental Restoration Program Sites

The 60th Civil Engineering Squadron/Asset Management Flight Restoration Section (60 CES/CEAN) implements the ERP to remediate threats to human health and welfare or the environment. ERP sites include landfills, spill areas, waste disposal sites, drum storage areas, underground storage tanks (UST) and piping, oil/water separators, waste treatment plants, and munitions disposal sites. Some groundwater ERP sites have had extraction/remediation systems installed to facilitate cleanup (Travis AFB, 2003b).

3.4.4 Stored Fuels

Fuel is stored onbase in USTs and aboveground storage tanks (AST). Gasoline and diesel fuel used for military vehicles and ground equipment are stored in ASTs and USTs in various locations at the Base. Thirty USTs are currently in use and regulated by the state of California UST program. Activities for removal or replacement of 20 USTs are being conducted under the Solano County and state UST programs. There are also 38 deferred/exempt USTs at the Base (Travis AFB, 2006).

3.5 Water Resources

This section provides a description of the groundwater and surface water resources, floodplains, and wastewater at Travis AFB.

3.5.1 Groundwater

Travis SFB is not underlain by extensive water-bearing materials. This is evidenced by the absence of major water supply wells near the Base. Groundwater occurs at the Base in shallow deposits and flows south of the Base into the Suisun Marsh, to Suisun Bay, and ultimately into the San Francisco Bay, generally following the surface topography. (Travis AFB, 2003c)

3.5.2 Surface Water

Travis AFB is located in the northeastern portion of the Fairfield-Suisun Hydrologic Basin. Within this basin, water generally flows south to southeast toward Suisun Marsh, an 85,000-acre tidal marsh that is both the largest contiguous estuarine marsh and the largest wetland in the continental United States (CH2M HILL, 2001). Suisun Marsh drains into Grizzly and Suisun Bays. Water from these bays flows through the Carquinez Strait to San Pablo Bay and San Francisco Bay, and ultimately discharges into the Pacific Ocean near the city of San Francisco.

Travis AFB lies in the southern portion of the Union Creek watershed. The headwaters of Union Creek are located approximately 1 mile north of the Base, near the Vaca Mountains, where the creek is an intermittent stream. Union Creek splits into two branches north of the Base. Onbase, the main (eastern) branch is impounded into a recreational pond designated as the Duck Pond. At the exit from the Duck Pond, the creek is routed through an underground storm drainage system to the southeastern Base boundary, where it empties into an open creek channel.

The storm drain system on Travis AFB consists of a series of underground storm drains and open ditches, which, for most of the Base, may be divided into six drainage areas (Sites I through VI) based on the Storm Water Permit. The western side of the Base, including the Aero Club, is not served by this storm drainage system. Stormwater on the western portion of the Base primarily infiltrates into the soil because of the flat topography of the area.

3.5.3 Floodplains

Most of the Base is within a 500-year floodplain, having a 0.2 percent annual chance of flooding. A small portion of the Base near the main gate is associated with the western

branch of Union Creek and is within the 100-year floodplain. This area has a 1 percent chance of annual flooding (Federal Emergency Management Agency, 2009).

The eastern branch and the remainder of the western branch of Union Creek (see Section 3.5.2) are located within the 500-year floodplain (approximately 8.6 acres of the western branch) and approximately 25 acres of the eastern branch (Travis AFB, 2003b). The eastern branch of Union Creek includes the Duck Pond and associated riparian areas.

Approximately 38 percent of Travis AFB consists of impervious areas. To prevent flooding, runoff from the impervious areas enters the Base stormwater drainage system. The Base stormwater drainage system is designed to accommodate a 10-year, 24-hour storm (Travis AFB, 2003b).

3.6 Biological Resources

The Proposed Action at Travis AFB would occupy a remnant portion of the Solano-Colusa Vernal Pool Region (Keeler-Wolf, 1998), which is characterized by periodic basins surrounded by upland herbaceous-dominant vegetation in the Sacramento Valley (U.S. Fish and Wildlife Service [USFWS], 2005). A description of this vernal pool region provides the regional context of the Proposed Action Area.

The Solano-Colusa Vernal Pool Region covers most of Solano County, ranging northward from the low-lying plains adjacent to the Suisun Marsh and the Sacramento-San Joaquin Delta through the Colusa Basin of western Sacramento Valley to the vicinity of Princeton, Glenn County. The region is best known for well-represented examples of northern claypan vernal pools between Highway 113 and the Base. This is the only known region to contain the federally threatened Delta green ground beetle (*Elaphrus viridis*) and the federally endangered grass Crampton's tuctoria (*Tuctoria mucronata*); these species distinguish this region from other vernal pool regions defined by Keeler-Wolf (1998).

Agricultural practices, water diversions and impoundments for waterfowl enhancement, development, and road-building have impacted vernal pools in the region. Many of the vernal pool areas in the region have been converted to agriculture or developed for residential, commercial, and industrial uses.

The Proposed Action would occur within Natural Resource Management Unit (NRMU) A at Travis AFB. The 2003 *Integrated Natural Resources Management Plan* (INRMP) (Travis AFB, 2003a) describes NRMU A as a recreational airfield, open space, and a vernal pool preservation area. In accordance with a U.S. Fish and Wildlife Service Biological Opinion (USFWS, 1999), this area is designated as a preserve in the INRMP and has management goals for vernal pools, special-status species associated with vernal pools, and western burrowing owls and their habitats.

3.6.1 Vegetation and Wildlife

The vegetation community in the area of the Proposed Action is best described as a vernal pool/grassland complex. Numerous natural and restored vernal pools are present in the area of the Proposed Action. Past land use practices and activities within the action area including the construction, operation, and maintenance of the Aero Club resulted in filling

many vernal pools. Construction of a firebreak in the area required the removal of approximately 1.75 acres of vernal pool habitat in summer 2005 (Collinge, 2007). Vernal pools in the Proposed Action area also have been altered through hydrologic changes associated with disturbances to adjacent uplands. Grasslands in the action area comprise winter annuals. The vernal pool/grassland community types are described in the following sections.

3.6.1.1 Vernal Pool Community

This community occurs in remnant vernal pools in the area of the Proposed Action and is dominated by native annual plants characteristic of northern claypan soil (Sawyer and Keeler-Wolf, 1995). Vernal pools are shallow depressions or small, shallow pools that fill with water during the winter rainy season. Vernal pools begin drying out during the spring and are completely dry during the summer. Most vernal pools at the Base are northern claypan vernal pools that occur on deep alluvial soils. Vernal swales, which are ecologically and floristically similar to vernal pools, also occur at the Base. Vernal swales consist of drainways or poorly defined depressions that are seasonally inundated for relatively short periods (Travis AFB, 2003a).

Vernal pools have developed an ecologically unique flora that has evolved to tolerate the wetting and drying cycle. A large population of the federally endangered Contra Costa goldfields (*Lasthenia conjugens*) was observed in areas adjacent to the Proposed Action. Other species include ripgut brome, wild oat, Italian ryegrass, filaree, annual hairgrass (*Deschampsia danthonioides*), maroonspot calicoflower (*Downingia concolor*), and stalked popcornflower (*Plagiobothrys stipitatus*).

Because of the large population of Contra Costa goldfields, which is associated with the vernal pools in the area of the Proposed Action, the Base has designated the area surrounding the Aero Club as a preserve.

3.6.1.2 Annual Grassland Community

This community type occurs in uplands dominated by introduced annual grasses that are associated with agricultural practices, along with occurrences of non-native and native wildflowers and weedy forbs. The annual grasses germinate with the onset of fall rains, and grow throughout the winter to flower throughout the spring. By summer, the annual grasses have set seed and are desiccated.

Most areas within the action area are dominated by grass species such as slender wild oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), saltgrass (*Distichlis spicata*), Mediterranean barley (*Hordeum marinum*), and Italian ryegrass (*Lolium multiflorum*).

3.6.2 Special-status Species

Special-status species are defined as follows:

- Any species officially listed as endangered or threatened, or any species that is a candidate for listing as endangered or threatened under the Federal Endangered Species Act

- California-listed threatened, endangered, or rare species
- California Department of Fish and Game fully protected species or species of concern

A list of species that potentially occur in the area of the Proposed Action has been compiled from the results of previous studies conducted at the Base (see Table 3-3), the California Natural Diversity Database (2009), and the California Native Plant Society (CNPS) (2009). Preliminary database searches included four U.S. Geological Survey Quadrangles: Fairfield North, Elmira, Fairfield South, and Denverton. Information on federally listed species for the Elmira Quadrangle, which includes the Proposed Action area, was also obtained from the USFWS, Sacramento Field Office.

TABLE 3-3

Previous Environmental Studies Reviewed

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

Title	Author	Date
<i>Basewide Ecological Habitat Assessment for Travis Air Force Base, California</i>	Roy F. Weston, Inc.	1994
<i>Assessment of Special-Status Plant and Animal Species at Travis Air Force Base, Solano County, California, Phase II Surveys</i>	Biosystems Analysis, Inc.	1993
<i>California Tiger Salamander Habitat Assessment at Travis Air Force Base, Solano County, California</i>	Rana Resources	2005
<i>Results of First Year Special-Status Vernal Pool Invertebrate Surveys at Travis Air Force Base – Winter/Spring 2004/2005</i>	EcoAnalysts, Inc.	2005
<i>Results of Special-Status Vernal Pool Invertebrate Surveys at Travis Air Force Base</i>	EcoAnalysts, Inc.	2006
<i>Travis Air Force Base – Final Natural Resource Liability and Assessment Management Report</i>	CH2M HILL	2006
<i>Travis Air Force Base – Final Summary of Rare, Threatened, and Endangered Species Associated with Seasonal Wetlands</i>	CH2M HILL	2006

Fifteen special-status species including six plants and nine animals were identified as having potential to occur onbase (see Table 3-4).

TABLE 3-4

Special-status Species Potentially Occurring at Travis AFB

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

Species Scientific Name	Species Common Name	Protection Status	Presence
Plants			
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	CE/CNPS 1B.2	Potential
<i>Neostapfia colusana</i>	Colusa grass	FT/CE/CNPS 1B.1	Potential
<i>Lasthenia conjugens</i>	Contra Costa goldfields	FE/CNPS 1B.1	Known
<i>Tuctoria mucronata</i>	Crampton's tuctoria	FE/CE/CNPS 1B.1	Potential
<i>Orcuttia inaequalis</i>	San Joaquin Valley Orcutt grass	FT/CE/CNPS 1B.1	Potential
<i>Trifolium amoenum</i>	Showy Indian clover	FE/CNPS 1B.1	Potential

TABLE 3-4

Special-status Species Potentially Occurring at Travis AFB

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

Species Scientific Name	Species Common Name	Protection Status	Presence
Animals			
<i>Athene cunicularia</i>	Burrowing owl	CSC	Known
<i>Rana aurora draytonii</i>	California red-legged frog	FT	Potential
<i>Ambystoma californiense</i>	California tiger salamander	FT	Known
<i>Branchinecta conservatio</i>	Conservancy fairy shrimp	FE	Potential
<i>Elaphrus viridis</i>	Delta green ground beetle	FT	Potential
<i>Thamnophis couchi gigas</i>	Giant garter snake	FT/ST	Potential
<i>Desmocerus californicus dimorphus</i>	Valley elderberry longhorn beetle	FT	Potential
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	FT	Known
<i>Lepidurus packardii</i>	Vernal pool tadpole shrimp	FE	Potential

Sources: Travis AFB, 2003a and California Department of Fish and Game, 2004

Notes:

CE = California Endangered

CSC = California Species of Concern

FE = Federal Endangered

FT = Federal Threatened

ST = Special Status

1B.1 = Rare or endangered in California and elsewhere; seriously threatened in California

1B.2 = Rare or endangered in California and elsewhere; fairly threatened in California

3.6.3 Areas Subject to Regulation under Sections 404 and 401 of the Clean Water Act

Wetlands and other Waters of the United States are ecological habitats that are protected by federal and state laws and regulations. The Clean Water Act (CWA) is the primary statute providing protection of aquatic resources and is administered primarily by the U.S. Army Corps of Engineers (USACE) and the Regional Water Quality Control Boards (Water Board). Any actions that involve the placement of fill material into jurisdictional waters and wetlands must comply with Sections 404 and 401 of the CWA.

USACE regulates the discharge of dredge and fill material into Waters of the United States (including wetlands) under Section 404 of the CWA. Waters of the United States are defined as all navigable waters, including the following:

- All tidal waters
- All interstate waters and wetlands
- All other waters, such as lakes, rivers, streams (perennial or intermittent), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, that the use, degradation, or destruction of which could affect interstate commerce
- All impoundments of water previously listed

- All tributaries to waters previously listed
- Territorial seas
- All wetlands adjacent to waters previously listed

The upper reaches of an unnamed tributary to Hill Slough, south of the Proposed Action Area, would be subject to regulation as a Waters of the United States under CWA Section 404. Wetlands are areas that “are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (USACE, 1987 and 2006). Wetlands may include seasonal wetlands and vernal pools in the area of the Proposed Action.

Section 401 of the federal CWA specifies that states must certify that any activity subject to a federal permit (such as a USACE permit) meet all state water quality standards. In California, the State Water Resources Control Board and the regional boards are responsible for taking certification actions for activities subject to permits issued by USACE. Wetlands and waters in the area of the Proposed Action are subject to the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (Region 5) (Water Board). Under state regulatory authority, any wetlands or other waters of the state, including isolated wetlands, are potentially subject to the jurisdiction of the Water Board.

3.6.4 Botanical Surveys

Botanical surveys have been conducted in the area of the Proposed Action as part of mitigation monitoring associated with a Base housing construction project (Collinge, 2005 and USFWS, 1999).

One federally listed plant species is known to occur near the area of the Proposed Action. Contra Costa goldfields is federally endangered, and it is a CNPS 1.B1 species.

3.6.5 Wildlife Surveys

Wildlife surveys were conducted by CH2M HILL on October 22, 2008. The surveys involved walking meandering transects along the area of the Proposed Action and recording all bird, mammal, reptile and amphibian species observed. Two special-status animals, golden eagle (*Aquila chrysaetos*) and western burrowing owl (*Athene cunicularia*), were observed outside of the Proposed Action Area during the wildlife survey.

The golden eagle is a California fully protected species, and they are protected under the federal Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. One adult golden eagle was observed foraging approximately 0.5 mile west of the Proposed Action Area.

The burrowing owl is a California Species of Special Concern and is protected under the Migratory Bird Treaty Act. One western burrowing owl was observed outside a burrow in a dirt pile approximately 0.25 mile west of the Proposed Action Area. Also, one western burrowing owl was reported near the Proposed Action Area (California Natural Diversity Data Base, 2009).

Small mammal burrows were observed near the Proposed Project Area that might provide upland habitat for the California tiger salamander (CTS), a federal- and state-listed threatened species. No special-status wildlife species have been observed or reported within the Proposed Action Area.

3.6.5.1 California Tiger Salamander

A general habitat assessment for CTS was conducted during April and May 2005 in all potential CTS breeding habitat at Travis AFB (Rana Resources, 2005). The habitat assessment did not identify any suitable CTS breeding habitat in the Proposed Action Area. During 2008 vernal pool invertebrate monitoring, CTS larvae were discovered in the northeastern part of Travis AFB, in the Castle Terrace housing area (former Burke Property), approximately 1.3 miles northwest of the Proposed Action (CH2M HILL, 2008).

The vernal pools near the Proposed Action Area are not known to provide suitable breeding habitat for CTS; however, a portion of the Proposed Action Area is within the maximum upland dispersal range of known CTS occurrences in the Castle Terrace housing area (CH2M HILL, 2008)..

3.6.5.2 Vernal Pool Branchiopod Surveys

Between November 29, 2004, and March 21, 2005, and between January 8 and April 27, 2006, EcoAnalysts (2006) conducted Basewide surveys for vernal pool branchiopods in accordance with USFWS (1996) guidance. However, these surveys did not include the area near the Proposed Action Area. During these surveys, vernal pool fairy shrimp (*Branchinecta lynchi*) were identified in vernal pools approximately 0.2 mile south of the Proposed Action Area. One vernal pool is partially within the Proposed Action Area and might provide suitable habitat for vernal pool branchiopods.

3.6.6 Wetland Assessment

Baseline wetland delineations were performed throughout the Base, including the Proposed Action Area, in 1995 (Roy F. Weston, 1995).

3.7 Socioeconomic Resources

Socioeconomic resources include the population, income, employment, and housing conditions of a community or region of influence. The population of Solano County, based on a 2006 estimate, is approximately 412,000 (U.S. Census Bureau, 2000). The overall impact of Travis AFB on the county and surrounding area is estimated to be in excess of \$1,554 million (Travis AFB, 2008). The Base is located in a growing part of the San Francisco Bay Area. By 2025, the population of Solano County is expected to grow by more than 30 percent (Association of Bay Area Governments Projections, 2002).

Socioeconomic conditions caused by the implementation of the Proposed Action Alternative could impact the rate of population growth, community demographic characteristics, and employment within the region of influence.

3.8 Cultural Resources

3.8.1 Cultural History

Travis AFB is located in a region that was once inhabited by the Southern Patwin (or Wintuan) tribe of Native Americans. The early inhabitants of the region established tribelets (i.e., villages) adjacent to freshwater marshes where they hunted, gathered, and fished for subsistence. The primary tribelets in the region were the Suisun and Talenas. When the Spanish missionaries arrived circa A.D. 1750 a proto-agriculture culture existed in the region (Travis AFB, 2003b). The Southern Patwin were adversely affected by mission activities, disease, and disruption by gold miners, who eventually became settlers, and had largely abandoned the area prior to epidemics of malaria and smallpox in 1833 and 1837. Descendants of the Southern Patwin currently reside in the northern part of their former range in the Sacramento Valley (URS Corporation, 2004).

Travis AFB was originally created as a temporary bomber base in 1942. The location was quickly recognized as an excellent air transport facility, and it was commissioned as the Fairfield-Suisun Army Air Base in 1943. In 1950, the Base was renamed after a former commander of the 9th Heavy Bombardment Wing, Brigadier General Robert Falligant Travis. Today, Travis AFB is known as “The Gateway to the Pacific,” and is among the largest and busiest military air terminals in the United States.

3.8.2 Cultural Resource Investigations and Resources

Since 1909, 16 cultural resource studies have been conducted at Travis AFB and surrounding areas. These studies identified 10 archeological sites and 27 structures on Base property that were potentially significant. Three of the 10 archeological sites were considered potentially prehistoric and the remaining 7 were considered potentially historical. All 10 sites were evaluated for eligibility for the National Register of Historic Places but were not eligible.

Two sites containing prehistoric ground were identified prior to construction of DGMC. Neither site is located near the Proposed Action Area. No other Native American resources have been identified within the boundaries of Travis AFB since this study was conducted. (Travis AFB, 2006)

Thirty-two buildings and structures associated with the Cold War are potentially eligible for inclusion on the National Register of Historic Places and are the only known cultural resources at Travis AFB (Travis AFB, 2003c). None of the 27 historical buildings are located near the Proposed Action Area.

3.9 Land Use

Travis AFB occupies approximately 5,128 acres in Solano County, California. The Base is located less than 5 miles east of downtown Fairfield and approximately 8 miles south of downtown Vacaville (see Figure 1-1).

Land uses at Travis AFB are grouped into 12 functional categories, as follows:

- **Administrative** – Personnel, family services, police and security, wing/group headquarters, legal services, communications, gate and visitor management, and other support facilities.
- **Aircraft Operations and Maintenance** – Aircraft operations, aircraft maintenance, aircrew and maintenance training facilities, and passenger and freight terminal facilities.
- **Airfield** – Pavement system, related open space, navigational aids, and airfield and airway clearance surfaces.
- **Community (commercial)** – Exchange, commissary, banking, dining facilities, eating establishments, indoor recreation facilities, and service stations; supports the needs of personnel and their families.
- **Community (service)** – Schools, education centers, library, chapel, post office, and child development facilities; supports the needs of personnel and families.
- **Housing (accompanied)** – Family housing, mobile home parks, and temporary lodging facilities.
- **Housing (unaccompanied)** – Dormitories for bachelors and quarters for visiting personnel.
- **Industrial** – Fire stations, base supply and equipment complex, fuel facilities, vehicle maintenance, civil engineer complex, open storage, utilities infrastructure, emergency response, ordinance and weapons storage, and other industrial uses.
- **Medical** – Medical, dental, and Veterans Administration clinics; veterinary clinics; and bioenvironmental engineering facilities.
- **Open Space** – Conservation and preservation areas; and safety, security, and buffer zones, including spaces that are unsuitable for development.
- **Outdoor Recreation** – Activities such as golf and swimming, park and picnic facilities, and recreation equipment checkout and storage.
- **Water** – Open space and outdoor recreation activities, buffer space between incompatible uses; generally includes ponds, streams, lakes, shorefronts, and oceans.

The Proposed Action Area is located within an Aircraft Operations and Maintenance land use designation. The *General Plan for Travis Air Force Base, California* (General Plan) (Travis AFB, 2006) provides recommendations for the expansion and redevelopment of Aircraft Operations and Maintenance land use areas should mission growth or reorganization occur.

3.9.1 Land Use Restrictions

Land use restrictions and controls establish buffers around certain facilities to protect human health from potential adverse effects. For example, protective buffer zones are designated around the munitions storage areas for protection in the event of accidental explosions. In some parts of the Base, land use controls protect human and environmental health from contaminated soils and water.

3.9.2 Land Use Surrounding Travis Air Force Base

The land surrounding Travis AFB on the northeast and east are primarily used for ranching and grazing. Areas to the south are a combination of agricultural and marshland. A few commercial/light industrial areas are located north of the Base. The area west of Travis AFB is predominantly residential.

3.10 Transportation System

Information regarding the transportation system has been summarized from the General Plan (Travis AFB, 2006). The road network serving Travis AFB consists of several major thoroughfares including Travis Avenue, Ragsdale Street/Cannon Drive, Burgan Boulevard, Parker Road, Hickam Avenue, and Hangar Avenue. Minor streets that branch off from these main roadways include Skymaster Drive, Broadway Street, W Street, Cordelia Avenue, and 1st Street. Transportation facilities at Travis AFB include parking areas, sidewalks, bicycle paths, mass transit, a passenger/cargo terminal, and a railhead. The maximum design capacity of onbase roads is 14,000 pounds (Highway Class).

3.11 Airspace/Airfield Operations

Airfield operations refer to any takeoff or landing at the Base. The activity may be a training maneuver or other defense-related operation.

The Aero Club facilities are not located in the primary airfield operations area or within the clear zones or accident potential zones on Travis AFB. The Aero Club runway is not used as an active airfield on Travis AFB for any other purpose than the temporary helipad for DGMC medevac operations. Currently, the airfield is restricted for uses other than DGMC operation of the temporary emergency helipad.

3.12 Safety and Occupational Health

Safety and occupational health is managed by BioEnvironmental (i.e., 60 AMDS/SGPB) and Wing Safety (i.e., 60 AMW/SEG). Construction site safety and accident prevention are ongoing activities for any Air Force job site. As part of the contracts for construction services, standard terms and conditions include safety as a priority. Areas of concern require compliance with regulations typical for construction projects, such as confined-space regulations, handling of hazardous materials, personal protection equipment standards, and limited access to the construction area. Operation of the helipad under current conditions could result in accidents because of inadequate helipad marking and lighting.

3.13 Environmental Management

Environmental management includes geology, soils, and pollution prevention. The following sections describe the regional geology of Travis AFB, the soil types present, and pollution prevention plans at the Base.

3.13.1 Geology

Travis AFB is located on the western edge of the Sacramento Valley segment of the Great Valley Geomorphic Province. The Coast Range Geomorphic Province, which consists of folded and uplifted bedrock mountains, is west of Travis AFB (Thomasson et al., 1960 and Olmsted and Davis, 1961).

The land surface structure (geomorphology) of Travis AFB is characterized by gently sloping alluvial plains and fans. These coalescing, low-relief fans were deposited by Ulati, Union, Alamo, Laurel, and Suisun Creeks.

The geology at Travis AFB shows unconsolidated silty clays located at the surface and silts and fine sands at depths of 15 to 20 feet. The average water table at the Base is 10 feet below grade (Travis AFB, 2003a). Some topographic relief in the form of very low ridges is provided by outcroppings of sedimentary rock in the Travis AFB area.

Portions of the north portion of the Base are underlain by alluvium of recent origin, consisting of sand, gravel, silt, and clay with thicknesses varying from 5 feet to 60 feet. The major portion of the Base is underlain by older alluvium consisting of inter-fingering lenses of sand, gravel, silt, and clay. (Travis AFB, 2003a)

Bedrock at Travis AFB consists of consolidated to semi-consolidated sedimentary rock. The overall thickness of the alluvium ranges from 0 to approximately 70 feet but is generally less than 50 feet. West of Travis AFB, the thickness of the alluvium increases to more than 200 feet (Thomasson et al., 1960).

The San Francisco Bay Area is a region of seismic activity due to the presence of the San Andreas, the Hayward, and the Calaveras fault zones. Travis AFB is more than 20 miles from each of these fault zones. The Green Valley fault is a smaller, potentially active fault approximately 10 miles west of the Base. In addition, the Vaca Fault System, consisting of several separate lineaments, has been inferred from photo lineaments, but no surface evidence has been identified in the field. This system is generally east and northeast of Travis AFB, although the Vaca Fault System probably traverses the Base to the east (Travis AFB, 2003a).

Tectonic processes have folded and uplifted the bedrock to form the hills and mountains located north, west, and south of Travis AFB. Outcrops of relatively resistant Markley Sandstone, Domingue Sandstone, and Tehama Formation comprise most of the topographic high points on base.

3.13.2 Soils

Soil develops from geologic material exposed at the earth's surface as the material is altered through physical, chemical, and biological processes. The nature of soil is in part a function of climate, surface slope, time of exposure at the surface, and the type of original (parent) material. Soils on and near Travis AFB are classified as alfisols, which are primarily silt and clay loam soils that exhibit low permeability and poor drainage characteristics. The lower layers of most of the soils at Travis AFB are dense and compact; they are typically impervious to air and discourage the penetration of roots or water. Therefore, little drainage occurs through the soil. In general, soils on Travis AFB have been considerably altered by heavy construction and imported fill (Travis AFB, 2003a).

Soil stockpiles shall be managed and characterized in accordance with *Engineering Standard 015705, Temporary Controls and Compliance Requirements* (Los Alamos National Laboratory [LANL], 2009). Submittal of a completed Form 124 and soil analysis results to 60 CES/CEAN are required prior to reusing soil or transporting soil to other locations.

3.13.3 Pollution Prevention

Travis AFB has an active Pollution Prevention Program to reduce the generation of wastes through a hierarchy of actions ranging from the preferred choice of source reduction to recycling, treatment, and finally disposal, as a last resort. The *Travis Air Force Base Pollution Prevention Management Action Plan* (P2MAP) (Travis AFB, 2004b) defines the framework to accomplish these actions. The plan analyzes all processes that use hazardous materials and generate hazardous waste streams; it then evaluates options to reduce the volume or toxicity of generated wastes. This program includes minimizing wastes generated by ERP sampling activities.

3.14 Environmental Justice and Protection of Children

EO 12898 (1994) requires each federal agency to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high human health or environmental effects of its programs, policies, and activities on minority populations and low income populations.” A minority population is composed of people who identify themselves to the U.S. Census Bureau as American Indian or Alaskan Native, Asian or Pacific Islander, Black or African American, or Hispanic, and where such population exceeds 50 percent of the population in an area or where the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population (President’s Council on Environmental Quality [CEQ], 1997).

Each year, the U.S. Census Bureau defines the national poverty thresholds, which are measured in terms of household income and the number of people within the household. In 2007, the poverty threshold was \$21,386 for a household of four (U.S. Census Bureau, 2008).

Solano County is a large, demographically diverse county, with communities ranging from the urban areas of Vallejo and Fairfield in the southwest to small rural towns, such as Dixon and Rio Vista. The estimated population of Solano County in 2006 was 411,680, with 63.9 percent White; 15.4 percent African American; and 22.0 percent Hispanic (U.S. Census Bureau 2000).

The city of Vallejo, the largest city in Solano County, had an estimated population of 119,708 in 2003. Vallejo is more diverse than the county as a whole; its population was 36 percent White, 23.7 percent African American, and 15.9 percent Hispanic. Approximately 10 percent of the population in Vallejo is at or below the poverty level. Fairfield is the second largest city in the county, with an estimated population of 102,762 in 2006. Fairfield is the closest city to Travis AFB. Fairfield more closely reflects the cultural composition of the county. The greater part of the population in Fairfield is White (56.2 percent), with lower percentages of Hispanic (18.8 percent) and African American (15.0 percent). Approximately 9.3 percent of individuals live at or below the poverty level (U.S. Census Bureau, 2000).

Travis AFB employs approximately 15,000 people. In 2006 the Travis AFB population consisted of approximately 7,944 active duty personnel; 3,384 Air Force, Army Reserve, and National Guard personnel; and 9,225 active duty dependents. In addition, the Base population included 1,892 appropriated fund civilian personnel and 1,662 non-appropriated fund civilians, contractors, and private business people (Travis AFB, 2006).

Although demographic data for Travis AFB was not available, the racial composition of the Air Force serves as an approximation of the racial composition of the Base. In 2008, the Air Force was 70.3 percent White, 11.9 percent African American, and the remaining 6.4 percent comprised other races (U.S. Census Bureau, 2008).

Children are present on Travis AFB in family housing, child development centers, the Travis AFB youth center, schools, and playgrounds (Travis AFB, 2006).

Environmental Consequences

4.1 Introduction

This section evaluates potential impacts of the alternatives described in Section 2. Potential impacts to the human and natural environments were evaluated by comparing the Proposed Action (i.e., Alternative 2) with the No Action Alternative. The subsection for each environmental resource or issue assesses the anticipated direct and indirect impacts, considering short- and long-term project effects.

As described in the following subsections, no significant adverse environmental impacts would occur with implementation of Alternative 2.

4.2 Air Quality

4.2.1 Laws and Regulations

4.2.1.1 Federal

Under the Clean Air Act of 1970 (CAA) as amended in 1977 and 1990, EPA established nationwide air quality standards to protect public health and welfare with an adequate margin of safety.

The 1977 CAA amendment required each state to develop and maintain a state implementation plan (SIP) for each criteria pollutant that violates the applicable NAAQS. The SIP avoids and minimizes emissions of pollutants that exceed ambient thresholds to achieve compliance with the NAAQS. In 1990, the CAA was amended to strengthen regulation of stationary and mobile emission sources for criteria pollutants.

Under the conformity provisions of the CAA, no federal agency can approve or undertake a federal action (project) unless the project has been demonstrated to conform to the applicable SIP. The provisions apply only in areas designated as nonattainment or maintenance for NAAQS. The general conformity determination is issued as a written finding after a minimum 30-day public comment period on the draft determination.

The general conformity rule prohibits any federal action that does not comply with applicable air quality attainment plan or SIP. General conformity applicability analysis requires quantification of direct and indirect construction and operation emissions for the project and comparison of those emission levels to baseline emission levels. If the differences in emissions (the net emissions associated with the project) exceed the general conformity de minimis levels for the peak year or any milestone year for attainment of standards, additional general conformity determination is required. An action is exempt from the conformity rule (presumed to conform) if the total net project-related emissions (construction and operation) pass two tests: (1) the emissions are less than the de minimis thresholds established by the conformity rule, and (2) the emissions are not regionally

significant (emissions are regionally significant if they exceed 10 percent of the total regional emission inventory).

4.2.1.2 California Clean Air Act

CARB oversees California air quality policies. The California Clean Air Act, passed in 1988, requires local air districts to develop and implement strategies to attain the CAAQS. The earliest CAAQS were established in 1969, pursuant to the Mulford-Carrell Act. CAAQS are generally more stringent than the NAAQS and limit four additional pollutants: hydrogen sulfide, sulfates, vinyl chloride, and visibility-reducing particles.

The SIPs required by federal law are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), district rules, state regulations, and federal controls. CARB is the lead agency for all purposes related to the SIP. Local air districts and other agencies, such as the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. CARB submits SIP revisions to EPA for approval and publication in the *Federal Register*.

4.2.1.3 Bay Area Plans and Programs

BAAQMD implements standards and policies established by CARB. BAAQMD rules and regulations apply to all sources of emissions within the nine-county Bay Area region, including western Solano County. The Bay Area air quality plans are regional plans that address how the San Francisco Bay Area will attain NAAQS and CAAQS. The plans and regulations require that new and modified stationary emission sources must apply for air quality permits and, if applicable, implement control measures and install emission-control equipment.

4.2.2 Alternative 1 – No Action

Under the No-Action Alternative, construction would not occur and air pollutant emissions associated with construction would not be generated. Emissions from vehicle operations and helicopters would not change from current conditions. No additional air quality impacts are expected from Alternative 1.

4.2.3 Alternative 2 – Proposed Action

4.2.3.1 Construction Emissions Impacts

Construction emissions are expected to occur as a result of engine exhaust from the additional vehicle traffic caused by construction workers and offroad construction equipment. These emissions would primarily consist of CO, NO_x, PM_{2.5}, PM₁₀, SO₂, and volatile organic compounds (VOC). In addition, demolition, site preparation, and grading would result in fugitive dust emissions. The offroad construction equipment and vehicles emissions of CO, NO_x, PM_{2.5}, PM₁₀, SO₂, and VOCs were estimated by using the URBEMIS2007 model (Urbemis, 2007), the projected construction duration, and the estimated hours of construction equipment operations. Default settings in URBEMIS2007 were used when project-specific data were not available. To estimate the worst-case annual emissions during the project construction, it was assumed that most of the demolition, grading, and paving will occur in 2010.

Emissions associated with worker commutes were estimated by using the expected number of vehicle miles traveled by the workers. Emission factors were calculated by using EMFAC2007 (Urbemis, 2007) for BAAQMD for the year 2010. The estimated construction emissions under Alternative 2 are shown in Table 4-1. Detailed construction emission calculations are provided in Appendix C.

TABLE 4-1

Estimated Alternative 2 Construction Emissions

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

Emission Source	VOC (tpy)	CO (tpy)	NO _x (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)	CO ₂ (tpy)
Equipment Exhaust – Demolition	0.01	0.05	0.08	0.00	0.02	0.01	7.70
Equipment Exhaust – Grading	0.06	0.27	0.54	0.00	0.03	0.02	48.32
Equipment Exhaust – Paving	0.03	0.11	0.2	0.00	0.02	0.02	15.60
Fugitive Dust	-	-	-	-	0.22	0.05	-
Worker Commute	0.0029	0.10	0.010	0.000	0.0013	0.00059	13.06
Total	0.093	0.48	0.75	0.00014	0.27	0.091	77.0

Note:

– = not applicable

Alternative 2 would result in temporary, short-term air quality impacts from construction emissions. Construction-related impacts are expected to be local (i.e., confined to the construction site area) and limited to the duration of the construction activities. Project construction would implement the applicable fugitive dust control measures defined in the guidelines (BAAQMD, 1999).

4.2.3.2 Operation Emissions Impacts

Emissions from helicopter operations were estimated using the emission factors and operation parameters in U.S. Air Force Conformity Applicability Model, Version 4.3. PM_{2.5} emissions were assumed to be the same as PM₁₀. The helipad operation emissions are shown in Table 4-2. As shown in the table, operation emissions are expected to be minimal and are not expected to have significant impacts to air quality.

TABLE 4-2

Estimated Alternative 2 Operation Emissions

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

	VOC (tpy)	CO (tpy)	NO_x (tpy)	SO₂ (tpy)	PM₁₀ (tpy)	PM_{2.5} (tpy)
Takeoff	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Approaching	0.0024	0.0347	0.0499	0.0066	0.0083	0.0083
Idle Out	0.1085	0.1019	0.0053	0.0019	0.0028	0.0028
Idle In	0.1176	0.1103	0.0058	0.0021	0.0031	0.0031
Climb	0.0038	0.0292	0.0636	0.0078	0.0173	0.0173
Total	0.23	0.28	0.12	0.018	0.031	0.031

4.2.3.3 General Conformity

The CAA established programs and permitting processes designed to protect and improve air quality. Section 176(c) of the CAA Amendment of 1990, 42 USC Section 7506(c), established a conformity requirement for federal agencies that has been implemented by 40 CFR 93, Subpart B. A general conformity applicability analysis for the project has been performed (see Appendix D) and is summarized in this section.

Alternative 2 would occur within the Basin in Solano County, which attains or is unclassified for all NAAQS except the 8-hour ozone and PM_{2.5} standard. In addition, the urbanized areas of Solano County (which includes Travis AFB) are maintenance areas for CO. As a result, CO, PM_{2.5}, and ozone, as well as the precursor emissions (NO_x, VOCs, SO₂) are subject to general conformity requirements. In accordance with the air conformity requirements of 40 CFR 51.853 and 93.153(b)(1), the de minimis threshold for marginal nonattainment areas is 100 tons per year (tpy) per ozone precursor pollutant (NO_x and VOCs) per federal action. The de minimis threshold for PM_{2.5} and its precursors (NO_x, SO₂, and VOC) are 100 tpy for each pollutant.

The annual emission increases associated with Alternative 2 and the comparisons with the de minimis thresholds are shown in Table 4-3. Emissions of CO, NO_x, and VOCs during the construction and operation of the helipad are below the de minimis thresholds. On the basis of the conformity applicability criteria, the project conforms to the most recent EPA-approved SIP; therefore, Alternative 2 is exempt from the CAA conformity requirements and does not require a detailed conformity demonstration.

TABLE 4-3

Alternative 2 General Conformity Applicability

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

Activity	Annual Emissions (tpy)		
	VOC	CO	NO _x
Construction (2010)	0.093	0.48	0.75
Operation (2010 and after)	0.23	0.28	0.12
De Minimis Threshold	100	100	100

4.2.3.4 Regional Significance

When the total emissions of the nonattainment and maintenance criteria pollutants do not exceed the de minimis limit, the emissions must be compared with the Basin emissions inventory to determine the regional significance of the federal action. If the amount of the emissions is greater than 10 percent of the emissions inventory, the federal action is considered regionally significant for that pollutant (40 CFR 93, Subpart 153[i]).

Table 4-4 compares the net emissions from the construction and operation of the Proposed Action with the Basin emissions inventory. VOC and NO_x emissions inventory data were obtained from the *San Francisco Bay Area Ozone Attainment Plan for the 1-hour National Ozone Standard* (BAAQMD et al., 2001). Carbon monoxide emissions inventory data were obtained from the *2004 Revision to the California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan for Ten Federal Planning Areas* (CARB, 2004). The nonattainment designation of PM_{2.5} was effect in November 2009. Currently, there is no SIP for PM_{2.5} for BAAQMD. The potential increases in emissions of CO, NO_x, and VOCs, for construction and operation are below the 10 percent threshold. Therefore, regional impacts due to Alternative 2 construction and operation are less than significant.

TABLE 4-4

Comparison of Emissions Inventory and Project Emissions

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

	VOC	NO _x	CO
Basin Emissions Inventory (ton/yr)	162,425	191,625	692,040
Construction Emissions (2010) (ton/yr)	0.093	0.75	0.48
Percent of Emissions Inventory (construction)	0.00006%	0.0004%	0.00007%
Operation Emissions (2010 and after) (ton/yr)	0.23	0.12	0.28
Percent of Emissions Inventory (operation)	0.0001%	0.00006%	0.00004%

Notes:

Basin emissions inventory data for NO_x and VOCs were obtained from *San Francisco Bay Area Ozone Attainment Plan for the 1-hour National Ozone Standard* (BAAQMD et al., 2001). Emissions inventory data for 2006 were used for emissions comparisons for all years.

Basin emissions inventory data for CO were obtained from *2004 Revision to the California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan For Ten Federal Planning Areas* (CARB, 2004). Emissions inventory data for 2010 were used for the emissions comparison.

In summary, construction and operation emissions of CO, NO_x, and VOCs under Alternative 2 would be below the de minimis levels. The emissions would not exceed 10 percent of the total Basin emission inventories listed in the SIPs. On the basis of the conformity applicability criteria, the project conforms to the most recent EPA-approved SIP; therefore, Alternative 2 is exempt from the CAA conformity requirements and does not require a detailed conformity demonstration.

4.3 Noise

This section describes noise impact criteria and discusses potential project-related noise impacts. Potential future noise impacts were determined by analyzing anticipated changes in noise exposure attributable to construction-related activities under the No Action Alternative and Alternative 2 (i.e., Proposed Action). After construction, no change in noise levels is anticipated during use or operation of the emergency helipad because operations at the new helipad are identical to those occurring at the temporary helipad.

4.3.1 Alternative 1 – No Action

Implementing Alternative 1 would not result in any construction or operational activities; therefore, current noise levels would not change.

4.3.2 Alternative 2 – Proposed Action

Typical construction-related noise is expressed in terms of schedule, equipment used, and types of activities. The noise level would vary during the construction period, depending on the type of construction activity. The EPA Office of Noise Abatement and Control and the Empire State Electric Energy Research Company have extensively studied noise from different types of construction equipment and construction sites (Barnes et al., 1977).

Noise levels associated with trucks, backhoes, concrete mixers, jackhammers, rock drills, and pneumatic tools range from 85 to 95 dB 50 feet from the source. Depending on the source and types of activities, noise associated with construction activities would be temporary, occur only during daytime hours, and vary in levels. Noise associated with medevac operations is approximately 100 dB CNEL (Travis AFB, 2006).

The noise from construction of Alternative 2 would be minor and temporary. Because construction noise would be temporary and sensitive receptors would not be affected, noise impacts resulting from implementing Alternative 2 would be less than significant.

DGMC is located approximately 1,000 feet from the Proposed Action Area. Buildings 771 and 772 are located adjacent to the Aero Club parking lot and are the closest to the proposed helipad site; these buildings are not currently in use. Several retail and industrial facilities are located within 600 feet of the Proposed Action Area; the closest offbase sensitive receptors, such as residences or schools, are located approximately 0.75 mile from the Proposed Action Area. Noise levels are expected to be at or below background levels by the time they reach these offsite receptors; therefore, operation-related noise impacts resulting from implementation of Alternative 2 would be less than significant.

4.4 Hazardous Materials, Wastes, Environmental Restoration Program Sites, and Stored Fuels

Congress passed the RCRA in 1976 to protect human health and the environment from the mishandling of solid and hazardous waste and to encourage the conservation of natural resources. Regulations adopted by EPA in 40 CFR 260 through 279 implement the RCRA. RCRA requires a system for managing hazardous wastes. In California, hazardous material and hazardous waste are regulated under Title 22 of the Code of California Regulations, Article 4.5.

Travis AFB implements procedures for handling hazardous materials and managing and disposing of hazardous wastes. The procedures are detailed in the following guidelines:

- *Air Force Instruction 32-7086, Hazardous Materials Management* (Air Force, 1997)
- *Air Force Instruction 32-7042, Solid and Hazardous Waste Compliance* (Air Force, 1994)
- *Travis Air Force Base Hazardous Waste Management Plan* (Travis AFB, 2004c)
- *Section 015705, Temporary Control and Compliance Requirements* (LANL, 2009)

All project alternatives would comply with these procedures. Compliance with waste management procedures would minimize potential impacts. Neither the temporary helipad nor the Proposed Action Area are located on or near any bulk fuel storage areas; and no impacts to bulk fuel storage areas are anticipated.

4.4.1 Alternative 1 – No Action

Implementation of the No Action Alternative would not result in changes to current hazardous materials management practices, hazardous waste production, or waste management practices.

4.4.2 Alternative 2 – Proposed Action

Operation of the helipad under Alternative 2 would not involve any activities that would increase the use of hazardous materials or increase the generation of hazardous waste.

Hazardous materials, such as fuels and paints, would be used during conversion of the Aero Club runway and installation of new infrastructure at the helipad. Construction could generate some hazardous wastes, such as empty containers and rags. All hazardous materials will be handled in accordance with the *Travis Air Force Base Hazardous Waste Management Plan* (Travis AFB, 2004c), which includes protocols for storing, labeling, and disposing of hazardous materials. With implementation of the Base waste management procedures, impacts resulting from use of hazardous materials and generation of hazardous waste during construction would be less than significant.

No ERP sites are located near the Proposed Action Area. If contaminated materials are encountered during construction, protective measures will be implemented in accordance with the directions from the Base Restoration Program Manager (Base RPM); therefore, potential impacts to human health and the environment from the existing contamination would be less than significant.

Prior to construction, the following measures will be implemented:

- Obtain a dig permit (60 AMW Form 55).
- Prepare a contingency plan in case soil discoloration or hydrocarbon vapors are detected or groundwater is encountered during construction. The contingency plan will be reviewed by the Base RPM prior to construction.

If contaminated materials are encountered during construction, protective measures will be implemented accordance with the directions from the Base RPM, and potential impacts to human health and the environment from the existing contamination would be less than significant.

4.5 Water Resources

4.5.1 Alternative 1 – No Action

Under Alternative 1, no changes to water resources, floodplains, or wastewater would occur.

4.5.2 Alternative 2 – Proposed Action

4.5.2.1 Groundwater

Neither construction nor operation of the new helipad would affect groundwater because construction and operation would not occur within the groundwater zone. Best management practices will be implemented in accordance with the P2MAP (Travis AFB, 2004b) to avoid ground water impacts in the event of a spill or leak.

4.5.2.2 Surface Water

Construction would potentially produce short-term impacts to surface water quality caused by erosion during construction activities. Construction equipment would access unpaved areas adjacent to the runway to demolish and repave the emergency helipad surface and install the lighting system.

Construction of the emergency helipad would result in a slight increase in the amount of impervious surface on Travis AFB. The only permanent infrastructure that would be constructed outside of currently paved areas would be footings for two perimeter lights; a total of approximately 8 ft² (less than 1 percent of the total Base area). Stormwater infiltration rates would be slightly decreased at the footings, increasing the quantity of stormwater runoff in the immediate area. The increase in runoff caused by the footings would be considered less than significant and would not contribute to flooding.

The Base currently has a stormwater permit and a stormwater pollution prevention plan (Travis AFB, 2004d). A dig permit (60 AMW Form 55) will be acquired prior to construction. The Proposed Action must comply with all applicable restrictions in the stormwater permit, the stormwater pollution prevention plan, and the dig permit. Best management practices (BMP) will be implemented in accordance with the permits to prevent erosion. Compliance with the relevant permits and implementation of BMPs will

reduce potential impacts to adjacent open fields caused by construction activities to less than significant levels.

4.5.2.3 Floodplains

Neither construction nor operation of the proposed action would affect the floodplain. Large, permanent structures, such as buildings or walls, have the potential to impede or divert floods. Operation of the new helipad would not involve new vertical structures that could impede or divert floods. Impacts to the floodplain from operation of the helipad would not change current conditions.

4.6 Biological Resources

This section analyzes the potential for adverse impacts to biological resources, such as habitat loss, from implementation of the No Action Alternative and the Proposed Action Alternative.

4.6.1 Alternative 1 – No Action

Under the No Action Alternative, construction of the emergency helipad would not occur; there would be no construction or other changes to the environment that could affect biological resources.

4.6.2 Alternative 2 – Proposed Action

The Proposed Action Alternative would occur primarily on existing paved surfaces associated with the abandoned Aero Club runway. Construction vehicles would require temporary access to unpaved areas on the northwest and southeast sides of the runway for demolition of the runway, construction of the helipad, and installation of the helipad perimeter lights.

Western burrowing owls, Contra Costa goldfields, and CTS would not be affected by construction or operations (see Figure 4-1).

Vehicle access during demolition, construction, and trenching activities associated with installation of the perimeter lights would result in temporary direct impacts to approximately 1.5 acres of unpaved grassland. Permanent direct impacts to 4 ft² of grassland would also occur. The perimeter lights would be installed outside the CTS 1.3-mile upland dispersal buffer (see Figure 4-1).

Implementation of stormwater BMPs would minimize (i.e., reduce but not eliminate) potential direct impacts to downgradient vernal pools and other wetlands within the Proposed Action Area. Direct impacts to vernal pools might occur as a result of dust, noise, and vibration that will not be minimized by implementing stormwater BMPs; however, these impacts are expected to be less than significant. No indirect impacts to wetlands, vernal pools, or vernal pool species are expected to occur as a result of implementing the Proposed Action.

All grasslands within the Proposed Action Area may provide foraging habitat for protected raptors, such as burrowing owls and golden eagles. Restoration of the grasslands will

mitigate for temporary impacts to grassland foraging habitat. Permanent impacts to approximately 4 ft² of foraging habitat would not result in significant impacts that threaten the survival of these species because contiguous habitat exists throughout the Base.

4.7 Socioeconomic Resources

The socioeconomic conditions of the region could be affected if implementation of either alternatives would change the rate of population growth, the demographic characteristics of the Base or Solano County, employment, or economic activity (onbase or in the county). This section evaluates potential impacts to socioeconomic resources.

4.7.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no effect on socioeconomic resources onbase or in Solano County because construction of the helipad would not occur.

4.7.2 Alternative 2 – Proposed Action

Implementation of Alternative 2 would have a short-term, beneficial impact on socioeconomic resources because it would require a temporary increase of civilian contract employees (construction workers) at the Base during construction. Given the supply of construction labor in the region, it is anticipated that construction workers would commute to the work site and would not require temporary housing. There would be minor, short-term economic benefits to local businesses from construction workers purchasing meals, fuel, and other commodities near the Base. The impacts to socioeconomic conditions from temporary employment would be beneficial but minor compared with the Base or the county economy.

Alternative 2 would not result in a long-term change to socioeconomic conditions because DGM personnel who currently operate the temporary helipad would operate the new emergency helipad.

4.8 Cultural Resources

The following laws and regulations govern cultural resources management at Travis AFB (Travis AFB, 2003b):

- National Historic Preservation Act of 1966, as amended (16 USC 470)
- Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001 through 3013 and 43 CFR 10)
- Archaeological Resources Protection Act of 1979 (16 USC 470aa through 47011)
- Protection of Historic Properties (36 CFR 800)
- National Register of Historic Places (36 CFR 60, 61, 63, and 68)
- *Air Force Instruction 32-7065 Cultural Resources Management*
- *Protection and Enhancement of the Cultural Environment* (EO 11593)

- *Accommodation of Sacred Sites* (EO 13007)
- *Consultation and Coordination with Indian Tribal Governments* (EO 13175)

The primary statutes requiring federal agencies to protect cultural resources include the National Historic Preservation Act, EO 11593, the Archaeological and Historic Preservation Act, and the Archaeological Resources Protection Act. The Cultural Resources Manager, under the supervision of the Asset Management Flight Chief, is responsible for managing natural and cultural resources at Travis AFB.

4.8.1 Alternative 1 – No Action

Under the No Action Alternative, current practices would continue and construction would not occur. Therefore, no change to cultural resources is anticipated to occur under the No Action Alternative.

4.8.2 Alternative 2 – Proposed Action

There are no known archeological sites, historical buildings, or other culturally sensitive areas in the Proposed Action Area. However, Buildings 771 and 772, located at the Aero Club, could potentially be eligible for inclusion in the National Register of Historic Places. These buildings are adjacent to the Proposed Action Area, and they would not be disturbed by construction or operation of the emergency helipad. Construction of Alternative 2 is not anticipated to affect historical buildings or known archaeological sites on Travis AFB.

If cultural or archaeological resources were disturbed during construction, the impact would be considered significant. Therefore, prior to construction, a dig permit (60 AMW Form 55) will be acquired from 60 CES/CEO and a contingency plan will be prepared requiring the following:

- All activities will take place in compliance with the *Integrated Cultural Resources Management Plan* (Travis AFB, 2003b).
- If human remains or archaeological or cultural artifacts are discovered during construction, work will cease, and the Cultural Resources Manager will be contacted.

Adherence to the dig permit and implementation of the contingency plan will reduce the potentially significant impact to less than significant levels.

4.9 Land Use

This section discusses the potential effects to land use from either of the project alternatives. Land use at Travis AFB is described in the General Plan (Travis AFB, 2006). Neither the Proposed Action nor No Action Alternative would have an impact on land use surrounding the Base.

4.9.1 Alternative 1 – No Action

Under the No Action Alternative, current land use designations would remain; therefore, there would be no impact to land use.

4.9.2 Alternative 2 – Proposed Action

According to the land use maps in the General Plan, the existing and future land use designation for the Proposed Action Area is Aircraft Operations and Maintenance. No change in land use would be required with implementation of Alternative 2; therefore, there would be no impact to land use under Alternative 2. The Proposed Action Area is in a land use control area because of its proximity to an environmental preserve.

4.10 Transportation System

This section discusses the potential effects to the transportation system from implementation of either of the project alternatives.

4.10.1 Alternative 1 – No Action

Under the No Action Alternative, construction of the emergency helipad would not occur and the existing temporary helipad would continue to be used. Current traffic levels and patterns to the Aero Club area would not change. Construction-related traffic would not occur; therefore, there would be no impact to the transportation system associated with the No Action Alternative.

4.10.2 Alternative 2 – Proposed Action

Under the Alternative 2, the roadways that would be used by construction traffic, including travel by construction workers in their personal vehicles to the construction site, would include the main Base thoroughfares (Dixon Avenue and Ragsdale Street). According to the General Plan (Travis AFB, 2006), there are no significant transportation or parking issues associated with either Dixon Avenue or Ragsdale Street. Traffic impacts resulting from the proposed construction would be temporary and, therefore, less than significant.

Operation of the Proposed Action would require personnel to travel to and from DGMC and the Aero Club for medevac operations. There would not be a change in the number of personnel accessing the site with implementation of the Proposed Action. The distance to the Alternative 2 site compared with the existing location of the temporary emergency helipad is short and entirely within the boundaries of the Aero Club; therefore, impacts to the transportation system caused by the operation of the emergency helipad would be less than significant.

4.11 Airspace/Airfield Operations

This section discusses the potential effects to airfield operations from implementation of the project alternatives.

4.11.1 Alternative 1 – No Action

No change in operations of the airspace/airfield of the main runway at Travis AFB would result from implementation of the No Action Alternative. The Aero Club runway is only used as an active airfield for the DGMC medevac operations at the temporary helipad.

Therefore, there would be no impact to airspace/airfield operations associated with the No Action Alternative.

4.11.2 Alternative 2 – Proposed Action

The emergency helipad would be located outside of primary airspace or airfield operational areas on Travis AFB. The Aero Club runway would have designated airfield and airspace to operate as an emergency helipad. Construction of the emergency helipad would not result in impacts to airspace or airfield operations on Travis AFB.

The emergency helipad would be constructed approximately 1,000 feet from the existing temporary helipad at the Aero Club. Temporary helipad operations would continue during construction of the emergency helipad. Construction vehicles would stage within the parking lot of the Aero Club; the vehicles would not stage on the temporary helipad or block the access road leading to the temporary helipad.

Temporary helipad operations are coordinated through DGMC. Both DGMC and the control tower are notified prior to the arrival and departure of offbase aircraft for medevac purposes. Because medevac operations are coordinated with DGMC and the control tower, it is not anticipated that construction of the emergency helipad would interfere with existing medevac operations; therefore impact of construction activities to existing temporary helipad operations would be less than significant.

The frequency of medevac activities would not change from existing conditions with implementation of the Proposed Action. The emergency helipad would comply with Air Force and FAA requirements for helipad lighting and design, resulting in a beneficial impact.

4.12 Safety and Occupational Health

This section discusses the potential effects to safety and occupational health from implementation of either of the project alternatives.

4.12.1 Alternative 1 – No Action

Construction would not be required under the No Action Alternative; therefore, no changes or impacts to safety and occupational health practices would occur. Continued operation of the temporary helipad would result in a negative impact to safety and occupational health because of insufficient lighting for night use and during conditions. Emergency medical services might also be delayed during adverse conditions.

4.12.2 Alternative 2 – Proposed Action

Implementing Alternative 2 would require construction activities, such as grading, paving, drilling, and operation of construction equipment. Implementation of Alternative 2 would follow all applicable rules and regulations regarding safety and occupational health. A health and safety plan for construction will be prepared that will include requirements, such as securing construction areas to prevent unauthorized personnel from entering the work sites. In addition, all workers would be provided with appropriate personal protective equipment including, but not limited to, approved hard hats, safety shoes, gloves, goggles,

eye/face protection, safety belts, harnesses, respirators, hearing protection, and traffic safety vests. With implementation of the health and safety plan, the potential for adverse impacts to safety and occupational health are expected to be minor and limited to the duration of construction.

Implementation of Alternative 2 would provide a helipad for medevac operations that will comply with all applicable design and lighting standards for helipads. The new helipad would be built in accordance with Air Force and FAA standards and would be safer than the existing temporary helipad, resulting in a beneficial impact to health and safety.

4.13 Environmental Management

Environmental management includes geology, soils, and pollution prevention. This section discusses the potential effects to environmental management from implementation of the project alternatives.

4.13.1 Alternative 1 – No Action

There would be no change to geology or soils or pollution prevention efforts if the No Action Alternative were implemented.

4.13.2 Alternative 2 – Proposed Action

Alternative 2 would temporarily disturb surface soils during demolition and construction activities. Disturbance of soils would result from construction vehicles accessing the site to demolish the existing pavement and install the helipad perimeter lights. Permanent impacts to the area as a result of placement of the perimeter lights would occur on less than 0.5 percent of the Base's total area. No rare or valuable soils would be disturbed; therefore, potential impacts to geology or soils associated with Alternative 2 would be less than significant.

The contractor would manage and characterize excavated soil stockpiles in accordance with *Engineering Standard 015705, Temporary Controls and Compliance Requirements* (LANL, 2009). The contractor would submit a completed Form 124 and soil analysis results to 60 CES/CEAN prior to reusing the soil or transporting it to other locations.

Occasional maintenance of the perimeter lights would require access to unpaved areas. Perimeter light would be inspected once per quarter. Light bulbs would be replaced immediately when they burn out. Disturbance would be limited to the corridor from the emergency helipad to the perimeter lights (25 feet on both sides of the paved area). Impacts to soil as a result of maintenance activities is anticipated to be less than significant, because the frequency of maintenance activities would be limited.

Implementation of Alternative 2 would comply with the overall objectives of the Pollution Prevention Program at Travis AFB. Implementation of Alternative 2 would produce waste in the form of inert construction debris, and all measures to prevent pollution will be implemented. To the extent possible, wastes generated during the construction phase and during subsequent periodic maintenance will be removed from the site and recycled. If recycling is not possible or feasible, the waste will be disposed of in accordance with applicable regulations and policies. Generation and management of waste during

construction is expected to meet the pollution prevention goals in the P2MAP (Travis AFB, 2004b). Implementation of these measures would result in less than significant impacts to waste production and pollution prevention management.

4.14 Environmental Justice and Protection of Children

This section discusses the potential effects to minority populations, low-income populations, and children from implementation of the project alternatives.

4.14.1 Alternative 1 – No Action

Implementation of the No Action Alternative would not affect minority or low-income populations or children, unless they require an emergency medevac that would not be possible.

4.14.2 Alternative 2 – Proposed Action

Construction and operation of Alternative 2 would not necessitate additional traffic on Travis AFB. Therefore, emissions from operations would not increase compared with current conditions, and long-term adverse impacts are not expected. Hazardous wastes produced at the site during construction will be managed and disposed of in accordance with applicable regulations and the *Travis Air Force Base Hazardous Waste Management Plan* (Travis AFB, 2004c) and would not pose a disproportionate risk to minority populations.

The Proposed Action Area is not near any onbase or offbase family housing areas or schools. The construction site, excavations, and materials will be properly secured during construction.

Construction and operation of Alternative 2 would not affect any minority populations, low-income populations, or children.

4.15 Indirect and Cumulative Impacts

4.15.1 Indirect Effects

Indirect impacts are defined by the CEQ in 40 CFR 1508.8 as those “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.”

Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate; and related effects on air, water, and other natural systems, including ecosystems.

Indirect effects of Alternative 2 have been addressed in the preceding resource-specific analyses. Implementing Alternative 2 is expected to result in less than significant indirect impacts to environmental or socioeconomic resources.

4.15.2 Cumulative Effects

Cumulative impacts are defined by the CEQ in 40 CFR 1508.7 as “impacts on the environment which result from the incremental impact of the action when added to other

past, present, and reasonable foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.”

Projects considered for cumulative impacts in this EA are those that were recently completed, ongoing projects, or projects planned to begin within the next 2 years. Projects that are under consideration by the Base that would occur after 2 years are too uncertain to be evaluated. The following list (organized by year) includes recently completed or foreseeable future actions that could occur at Travis AFB:

- **Fiscal Year 2008:**

- Repair 500 Ramp Spot 513
- Demolish skating rink (Building 869)
- Repair Collins Drive
- Repave parking lots at Building 804
- Repair/replace 600 Ramp, Spot 605 pull-through
- Repair/replace 600 Ramp, Spot 606
- Repair access to Building 1365
- Repair grounds contractor access road
- Demolish surplus housing units (107 units) (7 separate projects for a total of 703 housing units demolished)
- Repair David Grant Medical Center parking lots at Building 777 PH2
- Global Support Squadron

- **Fiscal Year 2009:**

- Repair Runway 03R/21L
- Construct C-17 Southwest Aircraft Landing Zone
- Repair 600 Ramp, Spot 603
- Repair 600 Ramp, Spot 604
- Construct South Gate
- Repair 500 Ramp, Spot 514
- C-17 Repair 300 Ramp PH9
- C-17 Repair 300 Ramp PH10
- Demolish Buildings 405, 707, 755, 756, 828, 1201, 1325, 1202, 1333, and 1032 (nine separate projects)
- Demolish skating rink

- Demolish trailer east of Building 1026
- **Fiscal Year 2010:**
 - Construct a large fire/crash station
 - KC-10 cargo load trainer
 - Repair Ramp, Spot 515
 - C-17 Repair 300 Ramp PH11
 - C-5 Repair Ramp PH12
 - Replace bulk fuel transfer lines
- **Fiscal Year 2011:**
 - Construct Taxiway M Bypass Road
 - Base Civil Engineer maintenance shops
 - C-17/C-5 Squad Operations/ AGS training facility

Cumulative impacts could result from the construction of new facilities, such as the C-17 landing zone, the South Gate, or the Bypass Road. The potential for cumulative impacts to air quality would be from multiple construction projects occurring simultaneously. The potential impacts to air quality from construction are discussed in Sections 3.2 and 4.2. Not all of the projects listed above would be constructed simultaneously. The Proposed Action would conform with the SIP and would not be regionally significant. After completion of the construction work, the Proposed Action would not contribute to long-term cumulative impacts to air quality because there would not be an increase in flight operations or traffic.

Impacts to all other resource areas potentially resulting from implementation of the Proposed Action are minor and would not result in significant cumulative impacts in conjunction with implementation of other projects.

4.16 Unavoidable Adverse Impacts

As described in the preceding resource-specific analyses, no significant unavoidable adverse impacts are expected from the construction or operation of the emergency helipad under the Proposed Action. Adverse impacts resulting from construction of the emergency helipad are anticipated to be minor and short in duration. There would be no significant adverse impacts to environmental or socioeconomic resources.

4.17 Relationship between Short-term Uses and Enhancement of Long-term Productivity

The purpose of the Proposed Action is to construct an emergency helipad that meets FAA and Air Force regulations for helipad lighting and design. Implementation of Alternative 2 would reduce safety concerns and increase the ability to provide medevac services at night and during low-visibility conditions.

Long-term productivity would be enhanced by implementing Alternative 2 because the inefficiencies resulting from use of the temporary helipad would be remedied.

4.18 Irreversible and Irretrievable Commitment of Resources

The resources expected to be affected during the long-term use of the emergency helipad is electricity for powering the lighting system. The current electrical system would have sufficient capacity to accommodate the expected increases in load. The lighting system for the emergency helipad would be operated approximately 10 times per month (for night and low-visibility operations) for the duration of aircraft take-off and landing activities.

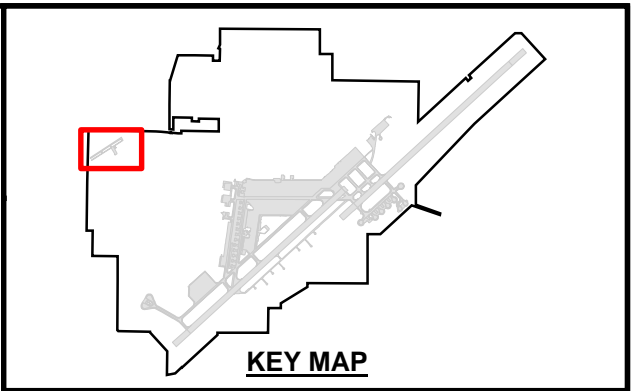
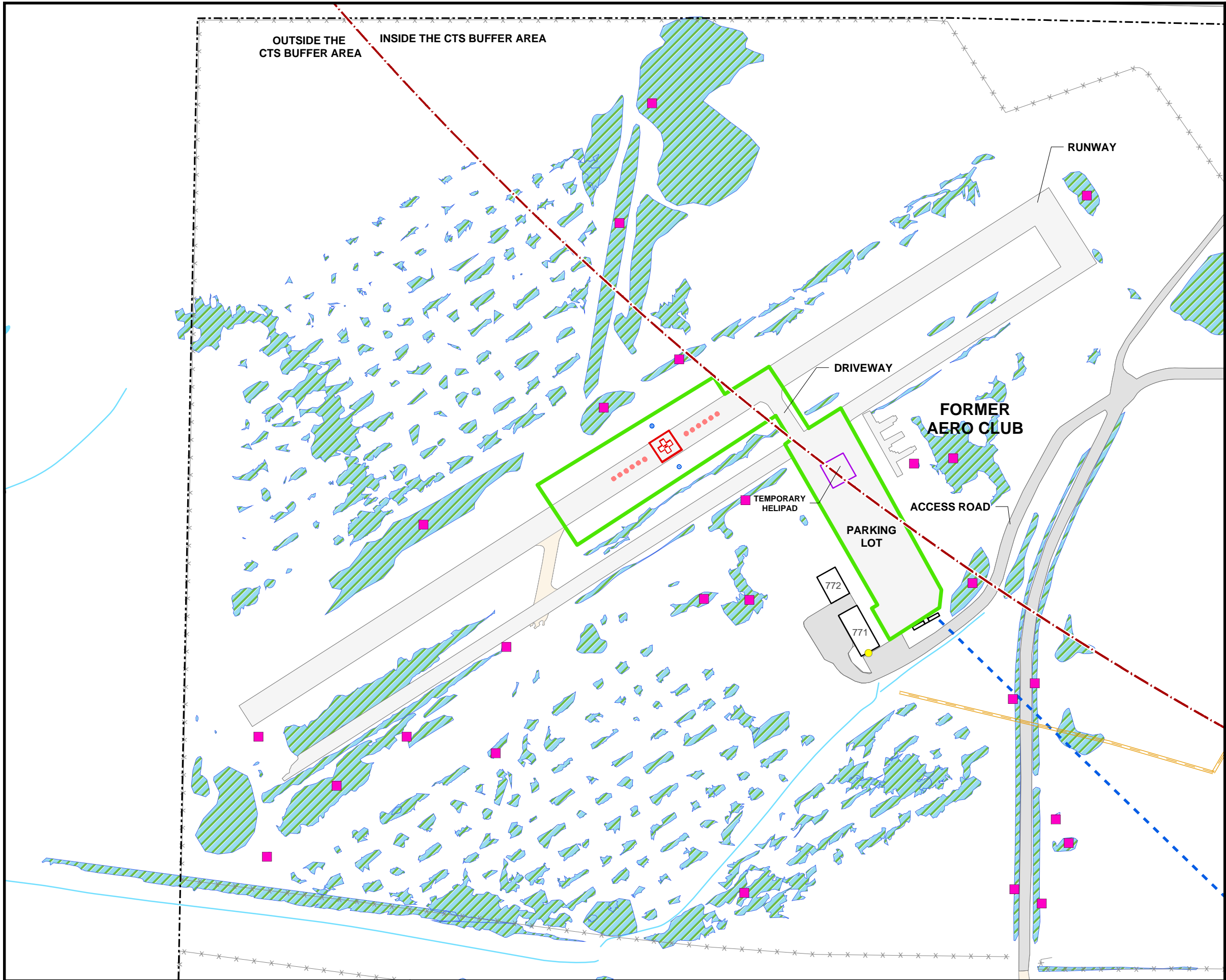
4.19 Special Procedures

To reduce environmental impacts, the Air Force will obtain, implement, and comply with the following:

- A dig permit (60 AMW Form 55) will be obtained prior to construction to avoid impacts to areas that should be avoided during construction (e.g., ERP sites, utility lines, and known cultural resources).
- A contingency plan will be prepared prior to construction to describe protocol and measures to be implemented if soil discoloration or hydrocarbon vapors are detected or if groundwater is encountered during construction. The contingency plan will be approved by the Base prior to construction.
- The contractor shall ensure all hazardous material use is authorized, tracked, and managed in accordance with AFI 32-7086, AMC Supplement 1.2.5.5.
- All activities will be performed in compliance with the *Integrated Cultural Resources Management Plan* (Travis AFB, 2003b) and work will cease and the Cultural Resources Manager will be contacted if human remains or archeological or cultural artifacts are discovered during construction.
- Construction and operation activities will comply with the *Travis Air Force Base Industrial Activities Storm Water Discharge Permit* (Travis AFB, 2002) and the construction stormwater pollution prevention plan. BMPs will be employed during construction activities to minimize soil movement, stabilize runoff, and generally control sedimentation. These BMPs will be described in a project-specific stormwater pollution prevention plan and could include regular and documented site inspections, installation of silt fences, minimizing earth-moving activities during wet weather, and revegetation of disturbed areas.
- Excavated soil stockpiles will be stockpiled and managed in accordance with *Engineering Standard 015705, Temporary Controls and Compliance Requirements* (LANL, 2009).
- Measures to minimize indirect impacts to wetlands include implementation of stormwater BMPs.
- Restore grassland (foraging habitat) immediately after construction is completed.
- A health and safety plan for construction will be prepared and implemented. The plan will include, for example, requirements for wearing appropriate personal protective equipment.

- Hazardous waste produced during construction will be managed and disposed of in accordance with applicable regulations and the *Travis Air Force Base Hazardous Waste Management Plan* (Travis AFB, 2004c).

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- LEGEND**
- ALTERNATIVE 2 – PROPOSED ACTION
 - TEMPORARY HELIPAD
 - WETLAND
 - ROAD/PAVEMENT
 - BASE BOUNDARY
 - .-.- 1.3-MILE BUFFER FROM CTS OBSERVED AT CASTLE TERRACE
 - .-.- WATER LINE
 - ELECTRICAL CABLE LINE
 - x-x- FENCE
 - PERIMETER LIGHTING
 - LANDING DIRECTION LIGHTS
 - CALIFORNIA NATURAL DIVERSITY DATABASE
 - CONTRA COSTA GOLDFIELDS, *Lasthenia conjugens*
 - BURROWING OWL, *Athene cunicularia*

NOTES:

1. THE EXACT LOCATION OF THE EMERGENCY HELIPAD ON THE RUNWAY WOULD BE DETERMINED DURING DESIGN.
2. CALIFORNIA NATURAL DIVERSITY DATABASE, 2009.



FIGURE 4-1
BIOLOGICAL RESOURCES
 ENVIRONMENTAL ASSESSMENT FOR CONVERSION OF THE EXISTING AERO CLUB RUNWAY TO EMERGENCY HELIPAD FOR DAVID GRANT MEDICAL CENTER TRAVIS AIR FORCE BASE, CALIFORNIA

SECTION 5

List of Preparers

Name	Education	Experience	Role
Marjorie Eisert	B.S., Wildlife and Fisheries Biology	19 years	Project Manager
Karin Lilienbecker	M.S., Biology	16 years	Senior Consultant
Michael Clary	B.S., Biology and Zoology	14 years	Ecologist
Julie Petersen	B.S., Biology	7 years	Environmental Scientist
Hong Zhuang	M.S., Environmental Science and Engineering	9 years	Air Quality Engineer
Staci Hill	B.S., Environmental Engineering	14 years	Project Engineer
John Deaton	B.S. Natural Resources Management	7 years	Technical Publications Specialist

SECTION 6

List of Agencies and People Consulted or Provided Copies

The following people were consulted during preparation of this EA:

- Rodolfo Pontemayor, CES/CEA
- Jeffrey Valles, CES/CEC
- Ray Hasey, CES/CEAN
- Paul Salecina, CES/CEPM2

Travis AFB coordinated distribution of this EA to the following public and regulatory agencies and libraries:

Federal

U.S. Environmental Protection Agency, Region 9
Director, Officer of Federal Activities
75 Hawthorne Street
San Francisco, California 94105

U.S. Department of the Interior
U.S. Fish and Wildlife Service
California/Nevada Operations Office
2800 Cottage Way, Room W-2606
Sacramento, California 95825

Federal Aviation Administration
Planning and Programming, San Francisco Airports Division
Attn: Mr. Joe Rodriguez
831 Mitten Road, Room 210
Burlingame, California 94010

U.S. Air Force

Department of the Air Force
Air Mobility Command
Attn: Mr. Doug Allbright, HQ AMC/A7PC
507 Symington Drive
Scott Air Force Base, Illinois 62225

Air Force Western Regional Environmental Office
Attn: Mr. Gary Munsterman
Air Force Center for Engineering and the Environment/CCR-S
50 Fremont Street, Suite 2450
San Francisco, California 94105-2230

State

California Air Resources Board
Air Quality and Transportation Division
1001 "I" Street
P.O. Box 2815
Sacramento, California 95812

California Department of Fish and Game
1416 Ninth Street
Sacramento, California 95814

Mr. Milford Wayne Donaldson, FAIA
State Historic Preservation Officer
Department of Parks and Recreation
1416 Ninth Street, Room 1442
Sacramento, California 95814

State of California Clearinghouse
Governor's Office
1400 Tenth Street, Room 121
Sacramento, California 95814

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109-7799

City

City of Fairfield
Community Development Department
1000 Webster Street
Fairfield, California 94533

City of Vacaville
Community Development Department
650 Merchant Street
Vacaville, California 95688

Suisun City
Community Development Department
701 Civic Center Boulevard
Suisun, California 94588

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Fairfield, California 94533

Suisun City Library
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Suisun City, California 94585

Mitchell Memorial Library
510 Travis Avenue (Bldg 436)
Travis Air Force Base, California 94535

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1020 Ulatis Drive
Vacaville, California 95687

In accordance with Air Force policy, a notice of availability for the draft EA and draft FONSI was published on June 18, 2010, in local newspapers. The notice of availability provided for a 30-day public comment period for documents placed in local libraries and made available to all interested parties on the Travis AFB public Web site. No comments were received.

SECTION 7

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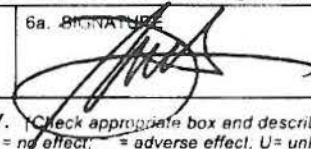

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Appendix A
Air Force Form 813

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS		Report Control Symbol RCS: 08-060
INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).		
SECTION I - PROPONENT INFORMATION		
1. TO (Environmental Planning Function) 60 CES/CECP	2. FROM (Proponent organization and functional address symbol) 60 CES/CECC-2	2a. TELEPHONE NO. 4-0885
3. TITLE OF PROPOSED ACTION Convert Existing Aero Club Runway to Emergency Helipad for DGMC		
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date) Convert the existing Aero Club to emergency helipad by installing lighting, markings and replacing asphalt pavement with portland cement concrete, (50 ft x 50 ft).		
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action.) The proposed action is to convert the existing Aero Club runway for emergency helipad operations to serve patient needs at the DGMC by providing lighting and markings to comply with AF and FAA regulations. The other alternative is no action.		
6. PROPONENT APPROVAL (Name and Grade) Paul Salecina, YD-02	6a. SIGNATURE 	6b. DATE 20080312
SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect, U = unknown effect)		
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)	<input type="checkbox"/> + <input checked="" type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)	Air conformity determination is not required IAW 40 CFR 93.253(c)(1).	
9. WATER RESOURCES (Quality, quantity, source, etc.)	See comment	
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.)	<input type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)	Please ensure the contractor complies w/the encl Chap 5 of the TAFB HWMP.	
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)	<input type="checkbox"/> + <input type="checkbox"/> 0 <input checked="" type="checkbox"/> - <input type="checkbox"/> U	
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)	<input type="checkbox"/> + <input checked="" type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)	<input type="checkbox"/> + <input checked="" type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)	<input type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
16. OTHER (Potential impacts not addressed above.)	<input type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION		
17. <input type="checkbox"/> PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____; OR <input checked="" type="checkbox"/> PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.		
18. REMARKS <div style="text-align: right; padding-top: 20px;">An Environmental Assessment is required, do not award without an approved FONSI or ROD.</div>		
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade) DAVID H. MUSSELWHITE, YF-02, DAF Chief, Asset Management Flight	19a. SIGNATURE 	19b. DATE 12 May 08

60 CES/CEVC Water Program Checklist

Project Title Convert Aero Club Heli Pad

XDAT 03-060

Reviewed by Chris Krettecoks CK Date 3/13/08

☐ Project qualifies as construction of 1 acre or more, or is part of a larger plan totaling 1 acre or more. Contractor must complete a Notice of Intent, SWPPP, and fee and submit it to 60 CES/CEVC prior to construction. (see attachments 1, 2, and 3) and complete and submit an Annual Site Compliance Report by July 1 of each year (see attachment 4).

☐ Project qualifies as construction of a sensitive nature less than 1 acre. Contractor must complete the Travis AFB Storm Water Pollution Prevention Plan for Construction Activities Less than 1 Acre (attachment 1) and submit it to Chris Krettecoks in 60 CES/CEVC, Bldg 570, prior to construction. Phone 424-3587 if you have any questions.

☐ Project qualifies as maintenance or ground disturbing activity of a sensitive nature. Contractor must complete the Travis AFB Storm Water Pollution Prevention Plan for Construction Activities Less Than 1 Acre and submit it to 60 CES/CEVC prior to construction (Attachment 1)

☒ Construction and demolition debris must be managed and protected to prevent it from entering the storm sewer system or blowing or running off the site.

☒ Handle soil in a manner that will prevent it from entering storm drains or blowing or running off site. Use appropriate industry standard Best Management Practices as required

☒ Uncontaminated water from excavations can be dewatered to nearby grass or soil in a manner that will not cause erosion. Contact 60 CES/CEVN prior to dewatering to soil or grass to assure proposed discharge location does not threaten vernal pools or other environmentally sensitive areas. Do not discharge to storm drains, gutters or sanitary sewer.

☐ High pressure water wash used to clean buildings of dirt and loose paint should be kept out of storm drains. Channel flow through filter rolls or similar to catch paint chips and debris and allow to flow to permeable area such as soil or grass. Collect waste and dispose of properly. Control flow to prevent erosion. Contact 60 CES/CEVN prior to dewatering to soil or grass to assure proposed discharge location does not threaten vernal pools or other environmentally sensitive areas. Flow may be channeled to large impervious area with no drains and allowed to evaporate. Be sure to collect paint chips from all ground surfaces after blasting and dispose of properly. For lead based paint, follow Travis AFB lead based paint management plan.

☐ Keep all paint products and wastes away storm drains, gutters and streets. Liquid residue from oil based paints, thinners, solvents, glues and cleaning fluids may be hazardous and must be disposed of properly.

☐ For oil-based paints, "paint out" brushes to the maximum extent possible and dispose of all wastes according to proper procedures.

☐ For water-based paints, "paint out" brushes to the maximum extent possible and rinse brushes to the sanitary sewer. Use plenty of water. Never pour paint down the drain.

☒ Fairfield-Suisun Sewer District permit regulates discharges to the sanitary sewer. Do not discharge wastewater or storm water associated with construction or industrial activity to the sanitary sewer without approval from 60 CES/CEVC and a permit from the Fairfield-Suisun Sewer District.

☒ Cleanup after concrete, stucco, mortar and asphalt work can cause storm water contamination. Uncured concrete, stucco and mortar should be returned to point of origin, or establish a permeable area away from drains, ditches, gutters and roadways to deposit until cured. When cured, remove and dispose properly. Return mixing equipment to point of origin for cleaning when possible. Otherwise, wash water and slurry should be dumped to a permeable area where it can be contained until dry. Hardened slurry should be removed and disposed of. Contact 60 CES/CEVN prior to dewatering to soil or grass to assure proposed discharge location does not threaten vernal pools or other environmentally sensitive areas.

☒ Surface cleaning solutions, including rinse water, must be collected and disposed of properly. Grease, oil, trisodium phosphate, sodium hypochlorite, hydrochloric acid and similar cleaning solutions are not authorized storm water discharges and are not legal to discharge down sanitary sewers.

☒ Saw cut slurry is a contaminant. Use sand/gravel bags or inlet filters in and/or around storm drain inlets to catch slurry. Vacuum or otherwise remove slurry and runoff as soon as possible and dispose of properly.

Other CONTROL EROSION & STORMWATER RUNOFF. PROTECT DRAINS. FOLLOW CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD'S "EROSION & SEDIMENT CONTROL

CA Krettecoks' Data \ 813 Proj Comment Sheet.doc

Revised 29 Sept 2006

FIELD MANUAL. IF PROJECT DISTURBS 1 ACRE OR MORE, A LINEAR UTILITY CONSTRUCTION PERMIT WILL BE REQUIRED

PREVIOUS EDITIONS ARE OBSOLETE

Appendix B
Air Force Form 1391

1. COMPONENT AIR FORCE		FY 2012 PROJECT DATA (computer generated)			2. DATE	
3. INSTALLATION AND LOCATION TRAVIS AIR FORCE BASE, CALIFORNIA				4. PROJECT TITLE INSTALL HELIPAD LIGHTING		
5. PROGRAM ELEMENT 41976		6. CATEGORY CODE 740-317	7. PROJECT NUMBER XDAT078015		8. PROJECT COST (\$000) EEIC 52900 309.4	
9. COST ESTIMATES						
ITEM			U/M	QUANTITY	UNIT COST	COST (\$000)
PRIMARY FACILITIES						278.8
PERIMETER/DIRECTIONAL LIGHTING			SM	502	294	(147.5)
REMOVE/REPLACE PAVEMENT			SM	55	1,139	(62.7)
EXCAVATE, TRENCH, & FILL			SM	55	755	(41.5)
PAINT MARKINGS			SM	84	323	(27.1)
SUBTOTAL						278.8
CONTINGENCY (5.0%)						13.9
SUPERVISION, INSPECTION, AND OVERHEAD (5.7%)						16.7
PROFIT AND OVERHEAD (.0%)						0.0
TOTAL FUNDED COST						309.4
UNFUNDED COST (.0%)						0.0
TOTAL REQUEST						309.4
10. Description of Proposed Work: Design/Install Hospital helipad and helipad lighting system. Modify existing runway on old aero Club airfield for new helipad markings and perimeter and directional landing lighting system.						
11. Requirement: As Required.						
<p><u>PROJECT:</u> Design/Install Hospital helipad and helipad lighting system. Modify existing runway on old aero Club airfield for new helipad markings and perimeter and directional landing lighting system.</p> <p><u>REQUIREMENT:</u> Single helipad for medical evacuation operations for DGMC, complete will all appropriate markings, omni-directional perimeter lighting as well as symmetrical landing directional lights. Lighting configuration and design must meet minimum FAA standards as well as comply with UFC 3-260-01, UFC 3-535-01, AFM 32-1076 and ETL-04-01</p> <p><u>CURRENT SITUATION:</u> A helipad currently exists on the parking ramp of the old Aero Club airfield in front of Bldg 772. The markings are incorrect according to Air Force guidelines and is without minimum required or recommended lighting systems. Helipad operations are dangerous during the day, let alone at night when they become nearly impossible due to complete lack of visibility. Winter operations are also incredibly dangerous due to the large amount of fog that is persistent within the area.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Without adequate helipad markings and minimum lighting systems, medical evacuation operations are extremely dangerous and nearly impossible at night or during the prolonged foggy season during the winter. This severely limits DGMC's capabilities in that it can neither send its own patients elsewhere in a timely manner for specialty care nor accept others to benefit from its state of the art facilities and world class health care.</p>						

Appendix C

Air Emission Calculations

Air Emission Calculations

C.1 Construction Equipment and Fugitive Dust Emissions

The construction equipment and vehicles emissions of nitrogen oxides (NO_x), sulfur dioxide (SO₂), particulate matter less than 10 microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), carbon monoxide (CO), and volatile organic compounds (VOC) were estimated using CARB's URBEMIS2007 model (URBEMIS, 2007) based on projected construction duration and estimated hours of construction equipment operations. Construction of the Helipad would take approximately 4 months, and would disturb about 3.6 acres of area. To be conservative, it was assumed that the project construction would occur in 2010. Default settings in URBEMIS2007 were used when project specific data were not available. Fugitive dust emissions were estimated based on a 10 pound per acre default emissions factor. Other default settings used in URBEMIS for a 3.6-acre construction site are:

For runway demolition:

- Demolition volume: 8748 cubic feet (54 feet long X 54 feet wide, 3 feet deep)
- On road truck travel: one round trip for material delivery
- One concrete/industrial saws (10 hp) operating at a 0.73 load factor for 8 hours per day
- One rubber tiered dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
- Two tractors/loaders/backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

For site grading:

- Total Acres disturbed: 3.6 acres
- Maximum daily disturbed area: 1.0 acres
- One grader (174 hp) operating at 61 percent load for 6 hours per day
- One rubber tired dozer (357 hp) operating at 59 percent load for 6 hours per day
- One tractor/loader/backhoe (108 hp) operating at 55 percent load for 7 hours per day
- One water truck (189 hp) operating at 50 percent load for 8 hours per day

For paving:

- Total acres to be paved: 3.6 acres
- Four cement and mortar mixers (10 hp) operating at 56 percent load for 6 hours per day
- 1 paver (100 hp) operating at 62 percent load for 7 hours per day
- 2 paving equipment (104 hp) operating at 53 percent load for 6 hours per day
- 1 roller (95 hp) operating at 56 percent load for 7 hours per day

A summary of the emissions from onsite construction equipment and fugitive dusts are shown in Table C-1. Detailed assumptions and URBEMIS outputs are provided in Attachment C1.

TABLE C-1

Estimated Alternative 2 Construction Equipment and Fugitive Dust Emissions

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

	VOC (ton/yr)	CO (ton/yr)	NOx (ton/yr)	SO ₂ (ton/yr)	PM ₁₀ (ton/yr)	PM _{2.5} (ton/yr)	CO ₂ (ton/yr)
Equipment Exhaust – demolition	0.01	0.05	0.08	0.00	0.02	0.01	7.70
Equipment Exhaust – grading	0.06	0.27	0.54	0.00	0.03	0.02	48.32
Equipment Exhaust – paving	0.03	0.11	0.2	0.00	0.02	0.02	15.60
Fugitive Dust	-	-	-	-	0.22	0.05	-

Notes:

Emission data estimated using URBEMIS2007.

ton/yr = ton or tons per year

C.1.1 Workers Commute Emissions

Emissions associated with workers commute were estimated based on expected number of trips and vehicle miles traveled by the workers. Emission factors were calculated using EMFAC2007 (CARB, 2007) for BAAQMD for the year 2010. Number of workers commuting to the construction site was assumed to be 10 per day, based on the equipment used from URBEMIS2007. The average round trip distance for each worker was assumed to be 40 miles. The EMFAC2007 emission factors for passenger cars and the estimated worker commute emissions are shown in Table C-2.

TABLE C-2

Estimated Alternative 2 Workers Commute Emissions

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

	VOC	CO	NOx	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Emission factor (lb/mile)	0.00014	0.0046	0.00051	0.0000066	0.000062	0.000029	0.63
Workers Commute Emissions (ton/year)	0.0029	0.10	0.010	0.000	0.0013	0.00059	13.06

Note:

Emission factors estimated using EMFAC2007 for BAAQMD for 2010.

C.1.2 Total Construction Emissions

Table C-3 presents the total of the construction emissions:

TABLE C-3

Summary of Construction Emissions – Total

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

Emission Type	Annual Emissions (ton/year)						
	VOC	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Equipment Exhaust – demolition	0.01	0.05	0.08	0.00	0.02	0.01	7.70
Equipment Exhaust – grading	0.06	0.27	0.54	0.00	0.03	0.02	48.32
Equipment Exhaust – paving	0.03	0.11	0.2	0.00	0.02	0.02	15.60
Fugitive Dust	-	-	-	-	0.22	0.05	-
Workers Commute	0.0029	0.10	0.010	0.000	0.0013	0.00059	13.06
Total	0.093	0.48	0.75	0.00014	0.27	0.091	77.0

C.1.3 Operation Emissions

Operation emissions from Alternative 2 would be generated by emergency Medevac flights to and from DGMC. Medevac flights frequency would be about 10 per month. Emissions from helicopter operations were estimated using the emission factors in U.S. Air Force Conformity Applicability Model Version 4.3 (ACAM, 2005). Sikorsky produced UH-60 Black Hawk with two T700-GE-700 engines were used to represent a typical helicopters to be used for the Medevac service. Default time settings in ACAM for each flight mode of UH-60 including taxi/idling, take-off, approaching, and climb-out were used in the emission calculation. For this analysis, PM_{2.5} emissions were conservatively assumed to equal the PM₁₀ emissions. Detailed emission calculations for helicopters are shown in Attachment C-2. The helipad operation emissions are shown in Table C-4. Carbon dioxide emission factors were not available in ACAM. However, due to the limited service provided to DGMC, helipad operation is not expected to have substantial CO₂ emissions from the helicopters.

TABLE C-4

Estimated Alternative 2 Operation Emissions

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

	VOC (ton/yr)	CO (ton/yr)	NO _x (ton/yr)	SO ₂ (ton/yr)	PM ₁₀ (ton/yr)	PM _{2.5} (ton/yr)
Take off	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Approaching	0.0024	0.0347	0.0499	0.0066	0.0083	0.0083
Taxi/Idle out	0.1085	0.1019	0.0053	0.0019	0.0028	0.0028
Taxi/Idle in	0.1176	0.1103	0.0058	0.0021	0.0031	0.0031
Climb	0.0038	0.0292	0.0636	0.0078	0.0173	0.0173
Total	0.23	0.28	0.12	0.018	0.031	0.031

C.2 Works Cited

California Air Resources Board (CARB). 2007. *EMFAC2007 Release*.

http://www.arb.ca.gov/msei/onroad/latest_version.htm. Accessed August 13, 2008.

URBEMIS 2007 for Windows, Version 9.2.

www.urbemis.com/software/Urbemis2007v9_2.html. Released June 2007.

U.S. Air Force Conformity Applicability Model Version 4.3 Technical Document, December 2005.

Attachment C1
URBEMIS Outputs

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name:

Project Name: Travis Helipad

Project Location: California State-wide

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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5/4/2010 11:24:39 AM

2010	0.12	0.85	0.50	0.00	0.22	0.05	0.28	0.05	0.05	0.09	80.77
Demolition 06/01/2010-06/30/2010	0.01	0.09	0.07	0.00	0.01	0.01	0.02	0.00	0.01	0.01	9.98
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.01	0.08	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	7.70
Demo On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15
Demo Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12
Fine Grading 07/01/2010-08/30/2010	0.07	0.54	0.29	0.00	0.22	0.03	0.24	0.04	0.02	0.07	50.51
Fine Grading Dust	0.00	0.00	0.00	0.00	0.22	0.00	0.22	0.04	0.00	0.04	0.00
Fine Grading Off Road Diesel	0.06	0.54	0.27	0.00	0.00	0.03	0.03	0.00	0.02	0.02	48.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
Asphalt 09/01/2010-09/30/2010	0.04	0.22	0.15	0.00	0.00	0.02	0.02	0.00	0.02	0.02	20.28
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.03	0.20	0.11	0.00	0.00	0.02	0.02	0.00	0.02	0.02	15.60
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.15
Paving Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.53

Phase Assumptions

Phase: Demolition 6/1/2010 - 6/30/2010 - demolition

Building Volume Total (cubic feet): 8748

Building Volume Daily (cubic feet): 1875

On Road Truck Travel (VMT): 26.04

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

5/4/2010 11:24:39 AM

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 7/1/2010 - 8/30/2010 - grading

Total Acres Disturbed: 3.6

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 9/1/2010 - 9/30/2010 - paving

Acres to be Paved: 3.6

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Attachment C2
Helicopter Emission Calculations

Attachment C2

Helicopter Emission Calculations

Medevac Operation Emissions - Helicopter Emission Factor**Medevac Helicopter Emission Factor**

	Time (minutes/event)	Emission Factors					
		VOC	CO	NOx	SOx	PM ₁₀	PM _{2.5}
Take off	0	0.275	2.182	6.079	0.706	1.836	1.836
Approaching	6.6	0.185	2.625	3.78	0.5	0.63	0.63
Taxi/Idle out	7.2	7.537	7.073	0.37	0.133	0.197	0.197
Taxi/Idle in	7.8	7.537	7.073	0.37	0.133	0.197	0.197
Climb	6.6	0.289	2.209	4.818	0.589	1.308	1.308

Note:

Emission factors and time at each operation mode were obtained from U.S. Air Force Conformity Applicability Model Version 4.3. PM10 and PM2.5 were assumed to be the same.

Medevac Helicopter Emissions

	Emission (ton/year)					
	VOC	CO	NOx	SOx	PM ₁₀	PM _{2.5}
Take off	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Approaching	0.0024	0.0347	0.0499	0.0066	0.0083	0.0083
Taxi/Idle Out	0.1085	0.1019	0.0053	0.0019	0.0028	0.0028
Taxi/Idle In	0.1176	0.1103	0.0058	0.0021	0.0031	0.0031
Climb	0.0038	0.0292	0.0636	0.0078	0.0173	0.0173
Total	0.23	0.28	0.12	0.018	0.031	0.031

Assumptions:

Helicopter Model:	Sikorsky UH-60 Black Hawk
Engine Model:	T-700-GE-700
Number of Engines	2
Frequency of Medivac Service:	10 per month

Appendix D
Clean Air Act Conformity Applicability Analysis

Clean Air Act Conformity Applicability Purpose

The U.S. Air Force is required to perform a general conformity applicability analysis to determine whether the Emergency Helipad Project at Travis Air Force Base (AFB), California, will comply with the U.S. Environmental Protection Agency's (EPA) Final Conformity Rule, 40 Code of Federal Regulations (CFR) 93, Subpart B (for federal agencies), and 40 CFR 51, Subpart W (for state requirements), of the amended Clean Air Act (CAA).

D.1 Background

EPA has issued regulations addressing the applicability and procedures for ensuring that federal activities comply with the amended CAA. The EPA conformity rule implements Section 176(c) of the CAA, as amended in 42 U.S.C. 7506(c). This rule was published in the *Federal Register* on November 30, 1993, and took effect on January 31, 1994. In March 2010, EPA revised the general conformity rule, which was published in Federal Registry in April 2010. The revised rule improves the process federal entities use to demonstrate that their actions will not contribute to a violation of a national air quality standard. The revised rule will be effective in July 2010. The analysis presented in this document follows the requirements in the 1993 version of the rule, which covers the analysis of de minimis levels and regional significance. After July 2010, the regional significance analysis will no longer be required.

The EPA conformity rule requires all federal agencies to ensure that any federal action resulting in nonattainment or maintenance criteria pollutant emissions conforms with an approved or promulgated state or federal implementation plan. Conformity means compliance with the purpose of attaining or maintaining the National Ambient Air Quality Standards (NAAQS). Specifically, this means ensuring that the federal action will not: (1) cause a new violation of the NAAQS, (2) contribute to any increase in the frequency or severity of violations of existing NAAQS, or (3) delay the timely attainment of any NAAQS interim or other attainment milestones.

The general conformity rule applies only to federal actions in NAAQS nonattainment or maintenance areas.

D.2 Summary of Air Pollutant Emissions and Regulatory Standards

The proposed project would be implemented in Solano County, California, under the jurisdiction of CARB, the Bay Area Air Quality Management District (BAAQMD), and EPA Region 9. The area is designated as nonattainment (marginal) for 8-hour Ozone (O₃). In addition, the urbanized areas of Solano County, which include the area occupied by Travis AFB, are maintenance areas for carbon monoxide (CO) under the 2004 *Revision to the California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan for Ten*

Federal Planning Areas (CARB, 2004). The county is in attainment for all other criteria pollutants.

The EPA Final Conformity Rule requires that total direct and indirect emissions of non-attainment and maintenance criteria pollutants, including O₃ precursors (volatile organic compounds [VOCs] and nitrogen oxides [NO_x]), be considered in determining conformity. The rule does not apply to actions where the total direct and indirect emission of non-attainment and maintenance criteria pollutants do not exceed threshold levels for criteria pollutants established in 40 CFR 93.153(b). Consequently, the applicable de minimis levels for the proposed project are 100 tons per year (tpy) for emissions of O₃ precursors (VOCs and NO_x), and 100 tpy for emissions of CO. Tables D-1 and D-2 present the de minimis threshold levels of nonattainment and maintenance areas, respectively.

TABLE D-1

De Minimis Thresholds in Nonattainment Areas

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

Pollutant	Degree of Nonattainment	De Minimis Threshold ^a
O ₃ (VOCs and NO _x)	Serious	50
	Severe	25
	Extreme	10
	Other ozone – outside an O ₃ transport region	100
O ₃ (VOCs)	Marginal and moderate – inside an O ₃ transport region:	50
O ₃ (NO _x)	Marginal and moderate – inside an O ₃ transport region:	100
CO	All	100
PM ₁₀	Moderate	100
	Serious	70
PM _{2.5}	Direct emissions	100
	NO _x	100
	SO ₂	100
	VOC or ammonia	100
SO ₂ or NO ₂	All	100
Pb	All	25

^aDe minimis thresholds are listed in tons per year. The bold number reflects de minimis threshold used in this analysis.

Source: 40 CFR 93.153(b)

In addition to meeting de minimis requirements, a federal action must not be considered a regionally significant action. A federal action is considered regionally significant when the total emissions from the action equal or exceed 10 percent of the emissions budget of the air quality control area for the applicable pollutant. If a federal action meets de minimis

requirements and is not considered a regionally significant action, detailed conformity analyses are not required pursuant to 40 CFR 93.153(c).

TABLE D-2

De Minimis Thresholds in Maintenance Areas

Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

Pollutant	Maintenance Area	De Minimis Threshold ^a
O ₃ (NO _x)	All	100
O ₃ (VOCs)	Inside an O ₃ transport region	50
	Outside an O ₃ transport region	100
CO	All	100
PM ₁₀	All	100
PM _{2.5}	Direct emissions	100
	NO _x	100
	SO ₂	100
	VOC or ammonia	100
SO ₂ or NO ₂	All	100
Pb	All	25

^aDe minimis thresholds are listed in tons per year. The bold number reflects de minimis threshold used in this analysis.

Source: 40 CFR 93.153(b)

D.3 Emission Calculations

D.3.1 Construction Emissions

Construction of the helipad would take approximately 4 months. Construction emissions are expected to occur as a result of engine exhaust from added vehicles trips of construction workers and offroad construction equipment, including earth-moving equipment and trucks. These emissions would primarily consist of NO_x, SO₂, particulate matter, CO, and VOCs. In addition, demolition, site preparation, and grading would result in fugitive dust emissions. Because the project is only subject to general conformity requirements for NO_x, VOCs, and CO, the emissions of SO₂ and particulate matter are not discussed in this applicability analysis. The construction emissions of VOCs, NO_x, and CO were estimated using CARB's URBEMIS2007 model (URBEMIS, 2007) based on projected construction area, construction duration, and estimated hours of construction equipment operations. Default settings in URBEMIS2007 were used when project specific data were not available.

Emissions associated with workers commute were estimated based on the expected vehicle miles traveled by the workers. Emission factors were calculated using EMFAC2007 (CARB, 2007) for BAAQMD for the year 2010.

D.3.2 Operation Emissions

Operation emissions from Alternative 2 would be generated by emergency Medevac flights to and from DGM. Medevac flights frequency would be about 10 per month. Emissions from helicopter operations were estimated using the emission factors and operation parameters in U.S. Air Force Conformity Applicability Model Version 4.3 (ACAM, 2005).

D.3.3 Emissions Summary and Comparison to De Minimis Levels

The annual emission increases associated with the project and the comparisons with the de minimis thresholds are shown in Table D-3. Emissions of VOC, CO, NO_x, SO₂, and PM_{2.5} during the construction and operation of the project are all far below the de minimis thresholds for each of the three applicable pollutants

TABLE D-3

General Conformity Analysis for Alternative 2 and Alternative 3
Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

Activity	Annual Emissions (tpy)				
	VOC	CO	NO _x	SO ₂	PM _{2.5}
Construction (2010)	0.093	0.48	0.75	0.00014	0.091
Operation (2010 and after)	0.23	0.28	0.12	0.018	0.031
De Minimis Threshold	100	100	100	100	100

D.3.4 Regional Significance

When the total emissions of the nonattainment and maintenance criteria pollutants do not exceed the de minimis limit, the emissions must then be compared to the air quality emissions inventory of the air basin to determine regional significance of the federal action. If the amount of the emissions is greater than 10 percent of the emission inventory, the federal action is considered regionally significant for that pollutant (40 CFR Part 93, Subpart 153[i]).

Table D-4 compares the net emissions from the construction of the Project with the San Francisco Bay Area Air Basin (Basin) emissions inventory. NO_x and VOC emissions inventory data were obtained from the *San Francisco Bay Area Ozone Attainment Plan for the 1-hour National Ozone Standard* (BAAQMD et al., 2001). CO emission inventory data were obtained from the *2004 Revision to the California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan for Ten Federal Planning Areas* (CARB, 2004). The nonattainment designation of PM_{2.5} in San Francisco Bay Area was effect in November 2009. Currently, there is no SIP for PM_{2.5} for BAAQMD. The potential increase in emissions of VOCs, NO_x, and CO for both the constructions and operation are below the 10 percent threshold. Therefore, the proposed project is not considered regionally significant.

TABLE D-4

Comparison of Project Emissions and Emissions Inventory
Environmental Assessment for Conversion of the Existing Aero Club Runway to Emergency Helipad for David Grant Medical Center, Travis Air Force Base, Fairfield, California

	VOC	NO _x	CO
Basin Emissions Inventory (ton/yr)	162,425	191,625	692,040
Construction Emissions (2010) (ton/yr)	0.093	0.75	0.48
Percent of Emissions Inventory (construction)	0.00006%	0.0004%	0.00007%
Operation Emissions (2010 and after) (ton/yr)	0.23	0.12	0.28
Percent of Emissions Inventory (operation)	0.0001%	0.00006%	0.00004%

Notes:

Basin emissions inventory data for NO_x and VOCs were obtained from *San Francisco Bay Area Ozone Attainment Plan for the 1-hour National Ozone Standard* (BAAQMD et al., 2001). Emissions inventory data for 2006 were used for emissions comparisons for all years.

Basin emissions inventory data for CO were obtained from *2004 Revision to the California State implementation Plan for Carbon Monoxide, Updated Maintenance Plan For Ten Federal Planning Areas* (CARB, 2004). Emissions inventory data for 2010 were used for the emissions comparison.

D.3.5 Conclusion

The emissions were estimated using the most conservative assumption that all construction phases would occur in 2010. The emissions are far below the de minimis level for each of the pollutants analyzed. In addition, the project emissions of CO and ozone precursors would not exceed 10 percent of the total Bay Area Air Basin emission inventories listed in the EPA approved SIP. On the basis of the conformity applicability criteria, the project conforms to the most recent EPA-approved SIP; therefore, the project is exempt from the CAA conformity requirements and does not require a detailed conformity demonstration.

D.4 Works Cited

Bay Area Air Quality Management District (BAAQMD), Association of Bay Area Governments, and Metropolitan Transportation Commission. 2001. *San Francisco Bay Area Ozone Attainment Plan for the 1-hour National Ozone Standard*. October.

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